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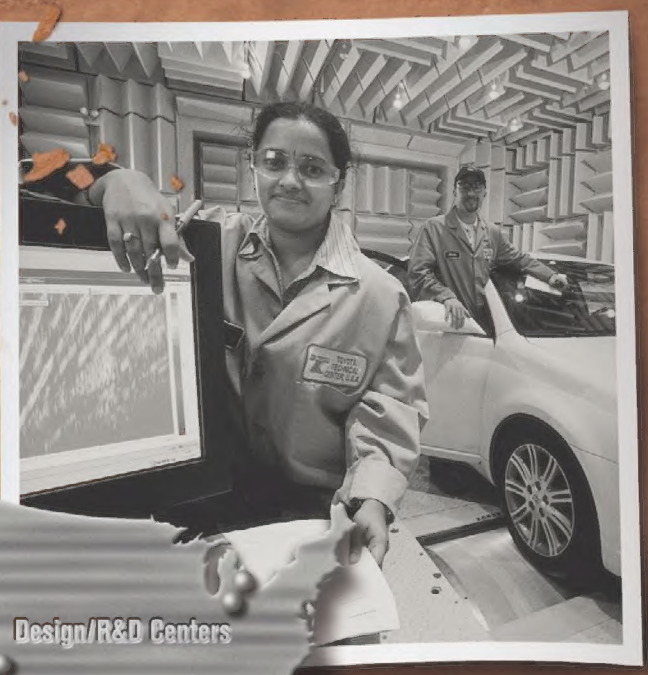

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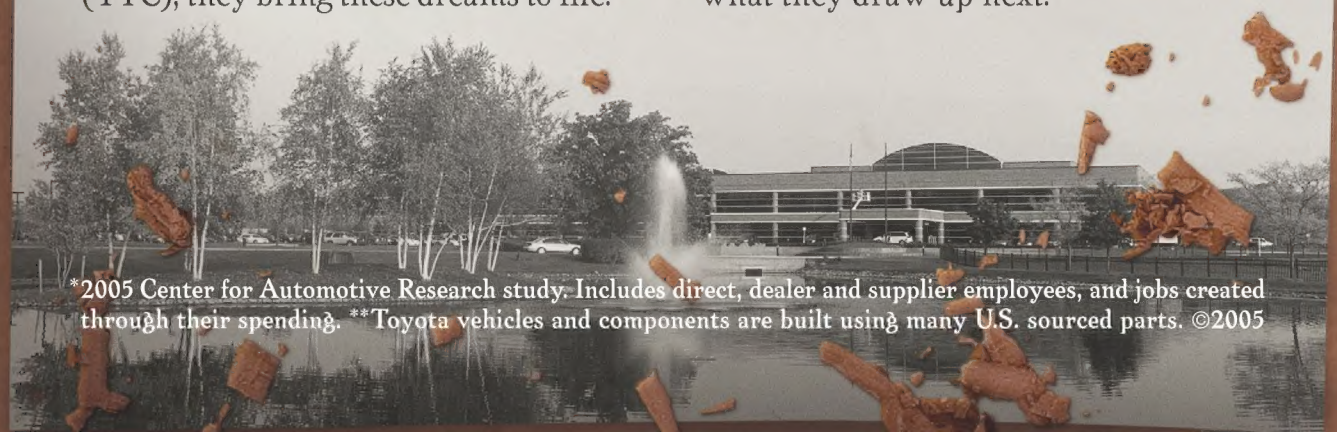

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In the company of marine biologists, the son of a famous ichthyologist is shocked by what he finds on a nostalgia-tinged journey to the Bahama island where he grew up

BY GORDON CHAPLIN / PHOTOGRAPHS BY BRIAN SKERRY

50 FORGOTTEN FOREST

Photographic plates discovered in an old toolshed open a window on life in Pennsylvania logging camps—and on the photographer who made them more than a century ago

BY RONALD E. OSTMAN AND HARRY LITTELL

60 RESURRECTING POMPEII

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78 HOOK, LINE & TELEVISION

No sooner does Minnesota's Mille Lacs Lake freeze each winter than it turns into a carnival on ice, as fishing shacks—from plain to fanciful—pop up hither and yon

PHOTOGRAPHS BY LAYNE KENNEDY / TEXT BY KEVIN KLING

84 MOZART: IN SEARCH OF THE ROOTS OF GENIUS

An admirer of the composer visits Salzberg, where Mozart was born 250 years ago, and Vienna, where he died 35 years later, to discover the origins of his mischievous magnificence

BY EDWARD ROTHSTEIN

Clarke photographed rough-and-ready loggers (who called themselves "wood hicks") and bark strippers ("bark savages").

"FORGOTTEN FOREST," PAGE 50

THIS PAGE: William T. Clarke was interested in documenting every aspect of Pennsylvania's logging camps, from the loggers themselves and their work environment to their families, tools, animals and pastimes (a c. 1897 photograph of a young advocate of the latest craze—bicycling). Photograph courtesy of the Lois Bardon Collection.

COVER: The eruption of Mount Vesuvius loosed a deadly pyroclastic surge on the wealthy seaside town of Herculaneum, burying everything in its path (a marble head of an Amazon recently unearthed at the Villa of the Papyrii). Photograph courtesy of the Ministero per i Beni e le Attività Culturali-Soprintendenza archeologica di Pompei / Field Museum, Chicago.

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Visibility back then could be well more than 100 feet. The fish, anemones, purple gorgonians, soft corals, tube sponges and sea fans, all moved to a light, watery rhythm, the symphony of the reef.

—"A RETURN TO THE REEFS," PAGE 40

THIS PAGE: A coral reef in the Bahamas (1974). Photograph by Chris Pederson

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EDITOR'S NOTE

WORLDS APART

CHANGE AND CONSTANCY ON SCEPTERED ISLES

BY CAREY WINFREY

GORDON CHAPLIN grew up in the Bahamas on an island across a narrow channel from Nassau. He knew it as Hog Island, named for the pig farms that once had been its only industry. Today, millions of tourists know Chaplin's boyhood home as Paradise Island, now the site of several casinos and resorts.

When Chaplin was a boy, he and his father, the renowned co-author of *Fishes of the Bahamas and Adjacent Tropical Waters*, an ichthyological reference book, often explored the coral reefs that surround the island. Chaplin went off to college and became a reporter for the *Washington Post*; his parents, now both deceased, sold the house in the 1970s. Recently, Chaplin returned for the first time in 30 years, with marine biologists from the Academy of Natural Sciences in Philadelphia who had come to survey the current state of the Bahamas' coral reefs. What they found there shocked and saddened Chaplin: most of the reefs were dead or dying, and much of the island had been paved over. Exploring it soon after he arrived, Chaplin found himself in a tunnel for vehicles that leads to a mega-resort. "It ran right under one of the inlets we dove in when I was younger, but I felt like I was in New York City rather than the Bahamas," he says. His stirring report, "A Return to the Reefs," begins on page 40.

Chaplin "felt like I was in New York City."

Raffaele: Gone with the chocolate.

PAUL RAFFAELE first heard about cargo cults—religious movements that sometimes revere Western soldiers who were stationed in the South Pacific during World War II—when he was based in Papua New Guinea in 1961 as a *kiap*, an Australian colonial official, junior grade, charged with patrolling tribal villages. Hiking through the highlands one day, he came upon a wooden airplane that cult members had built on a hilltop as a tribute to the Allied servicemen who had brought them modern goods, or "cargo."

Most cargo cults, Raffaele says, vanished "when the supply of chocolate bars dried up." But when he learned that one, the John Frum movement, had survived into the 21st century on the island of Tanna in the South Pacific, he packed his bags and booked a flight to investigate. His report, "In John They Trust," begins on page 70.

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Please *Do* Touch

At the Insect Zoo, you can crawl through a termite mound and hold a hissing Madagascan cockroach. Or not

"INSECTS won't inherit the earth; they own it now," observes entomologist Thomas Eisner. Indeed, they have been running our terrestrial ecosystems for 325 million years. Insects are by far the most prevalent form of animal life on the planet—amazingly diverse, hardy and adaptive. Because of their importance, the Smithsonian has long provided visitors opportunities to see these six-legged creatures and learn about their place in the world's biodiversity.

The best-known Smithsonian venue dedicated to that endeavor is the O. Orkin Insect Zoo—so named in recognition of generous support from the Orkin Pest Control Company—in the National Museum of Natural History (NMNH). Today, the Insect Zoo is an elaborate facility offering a variety of interactive experiences. (See www.mnh.si.edu/insect/.) Next year a spectacular "Butterfly Garden," especially designed to increase understanding of plant-insect co-evolution, will be added. But the Insect Zoo began humbly, in 1971, as a temporary summer exhibit. The show proved so popular that organizers brought it back for another season. Then, in 1976, the Insect Zoo was given a permanent home at NMNH. Volunteers engaged visitors with feeding demonstrations and live insects to touch and hold. Exhibits provided detailed information about the natural history of insects and their relatives. From the beginning, the Insect Zoo was a tremendous hit. With its renovation in the early 1990s, it also became a place where people could readily learn about biodiversity, insects' critical roles in ecosystems and behind-the-scenes Smithsonian research. Now more than 16,500 insects and related arthropods, comprising some 65 species, live at the Insect Zoo. Three full-time staff and 50 volunteers relate the insects' myriad complex stories.

Visitors can see a leaf insect, watch a tarantula feeding and hold a lubber grasshopper.

The most exciting feature of the third-generation Insect Zoo is the many different ways visitors can participate, getting as close to the residents as they like. They can, of course, just view the dioramas, pictures and videos, read the information on the walls and listen to explanations by the knowledgeable docents. But people who prefer a close look at live insects and learning through doing have many options. They can watch as tarantulas are fed crickets, and they can hold tobacco hornworms, patent-leather beetles, giant hissing cockroaches from Madagascar and eastern lubber grasshoppers. They can experience a rain forest, mangrove colony or desert and see the insects that thrive in these ecosystems. They can see whirligig beetles skitter across the water at a pond with both above- and below-water views. They can even crawl through a life-size model of an African termite mound.

Ongoing research at the Smithsonian, in the NMNH Entomology Department and elsewhere, regularly helps to keep the Insect Zoo's exhibits current with the latest findings. For example, insect ecologist Ilka Feller's work collecting and studying insects in mangrove habitats (environmentally sensitive regions where organisms must adapt to significant fluctuations in temperature, wetness and water salinity) led directly to the creation of the Insect Zoo's mangrove exhibit. Similarly, a Smithsonian paleobiologist's study of fossil insects prompted the Insect Zoo to modify one of its most dramatic models—of an ancient dragonfly with a two-and-a-half-foot wingspan—from one resembling today's dragonflies to a more accurate depiction of an ancient dragonfly, with a head and reproductive organs that differ from what we now see.

Over the past 30 years, the story of insect life on this planet may not have changed in its broad outlines, but the Insect Zoo certainly has. With its continual updating, visitors are learning more than ever about what these fascinating creatures have been up to for 325 million years.

Lawrence M. Small
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LETTERS

Readers respond to the December issue:

THANKS APLENTY

"Native Intelligence," on Squanto and the Pilgrims, elicited several letters questioning whether the Pilgrims' Thanksgiving feast in 1621 was the first. David Ellis of Fredricksburg, Virginia, writes that the first one was "celebrated at Berkeley Plantation," upriver from Jamestown, in 1619, while Robert Belles of El Paso, Texas, argues for Spanish explorer Juan de Oñate's "service of Thanksgiving" at the Rio Grande in 1598.

Author Charles Mann responds:
The issue of what constitutes the first Thanksgiving is pretty interesting. If one means the first feast in which Europeans in the Americas expressed thanks to God for passing through hard times, the honor may belong to the expedition led by Francisco Vásquez de Coronado. In May 1541, after a terribly arduous journey across the high plains of Texas, the nearly starving Spaniards feasted on game, and Coronado apparently ordered his priests to say a Mass of thanksgiving. In September 1565, Pedro Menéndez de Avilés led about 800 Spaniards to colonize St. Augustine. The landing party celebrated their arrival, inviting the local Indians—an act of religious thanksgiving in a permanent settlement that included both Natives and newcomers. Sounds like Thanksgiving to me! Personally, though, I would argue for the Pilgrims. Thanksgiving is more or less an invented tradition. It comes from the 19th century, and the story of the Pilgrims, not of Jamestown or anything earlier, was the impetus to make it a holiday. So we're stuck with it, historical inaccuracy or no.

CONTENTIOUS QUESTIONS

"STEM CELL PIONEERS" perpetuates a common misrepresentation about human embryo research. Many argue that research requiring the death or manipulation of in vitro fertilization (IVF) embryos is justified, because 400,000 are available and, as your article states, "an untold number" will ultimately be destroyed. In fact, the cited research, published in the May 2003 issue of *Fertility and Sterility*, states: "Nearly 400,000 embryos are stored in the United States, the majority of which (88.2%) are targeted for [assisted reproduction] patient use. Few are available for research (2.8%), limiting possible conversion into embryonic stem cell lines." Many proponents of research with IVF embryos mistakenly believe that most will be destroyed anyway.

JAMES L. SHERLEY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASSACHUSETTS

AUTHOR JON COHEN ASKS, "Should religious belief play a role in shaping laws and regulations?" Judging by the preponderance of space he devotes to Weissman, Klein and other stem cell proponents, he seems to answer "no." But we cannot make a judgment without involving our belief system and code of ethics. Robert Klein, in campaigning for embryonic stem cell research, is acting on his belief that his son's life is precious and worth preserving and that an embryo, which he has no attachment to, is not. It is not a question of pure science versus religious mania; it is a question of one value system versus another.

YVONNE POTTER
GRAND BLANC, MICHIGAN

JON COHEN did an excellent job of presenting the issue in a rational light. The vast potential for cures and the fact that Californians feel justified in using their own money to pay for stem cell research illustrate how important this research is. I hope it is only a matter of time before there's complete federal funding for research on all stem cell lines, and such silliness as color-coding pipettes to separate the federally approved from the nonfederally approved becomes a thing of the past.

RYAN HUMES
SALT LAKE CITY, UTAH

HELPING THE KURDS

ANDREW COCKBURN omits certain facts about Turkey's critical role in the protection of Kurds ("Iraq's Resilient Minority") facing counterattacks from the government in Baghdad in 1991. Turkey provided air bases, enabling Allied planes to patrol the "no-fly" zone over northern Iraq. Turkey was also engaged in efforts to end the clashes between Kurdish groups. And, contrary to claims made by some, Turkey serves as a crucial humanitarian and economic conduit for Iraq by keeping the Habur crossing gate fully open at its southeastern border.

YUCEL GUCLU
EMBASSY OF TURKEY
WASHINGTON, D.C.

CORRECTION: *It was not inmate George Jackson who participated in an attempted escape from the Marin County, California, courthouse on August 7, 1970, as stated in "The Year We Were Born." It was his brother Jonathan Jackson.*

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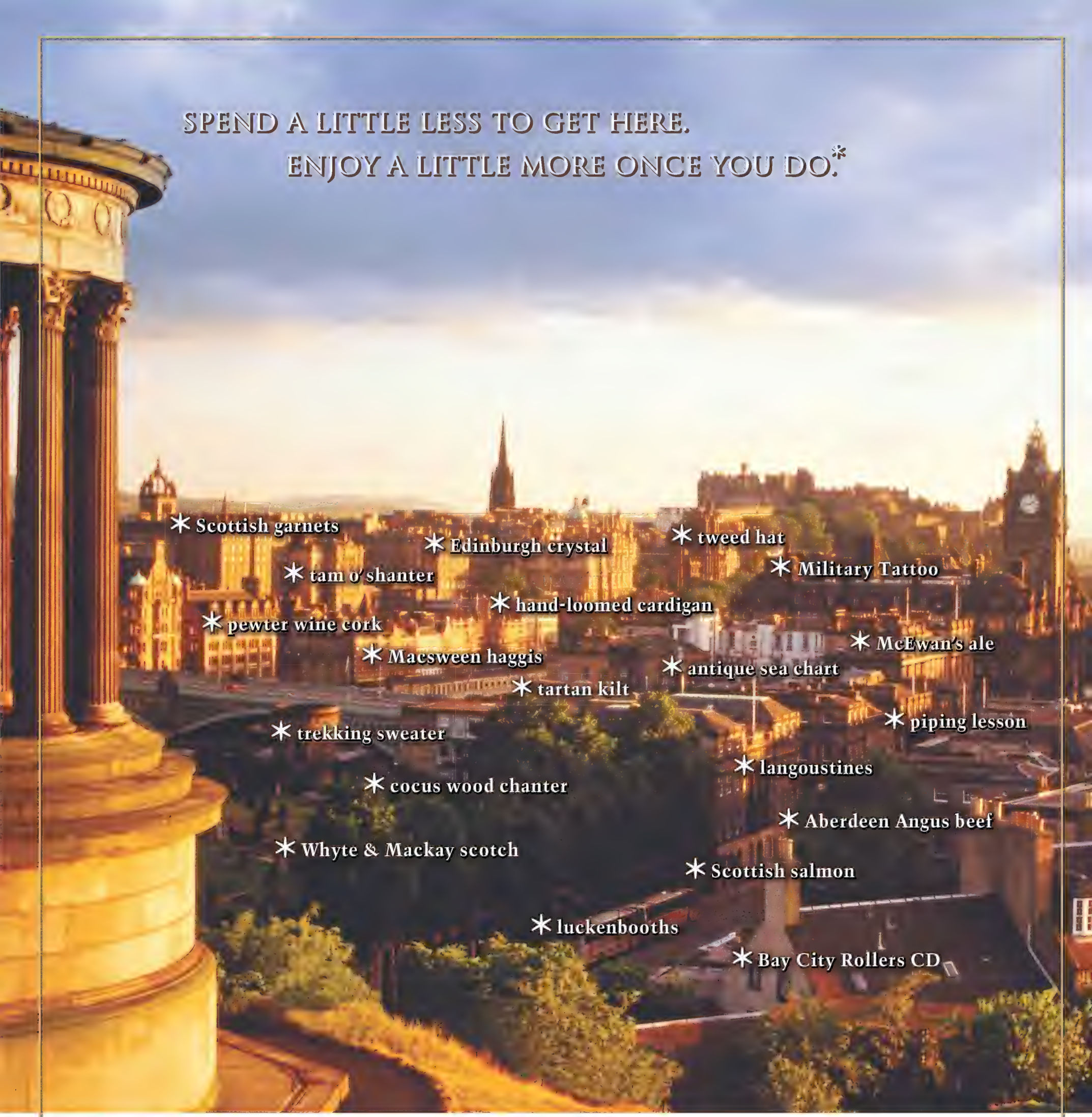

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AFTER MORE THAN A DECADE OF WARFARE, JOSEPH DUO IS FINDING THAT PEACE TAKES SOME GETTING USED TO

BY CHRISTINE DELL'AMORE

July 20, 2003: another day in Liberia's 14-year civil war.

Rebels were closing in on the government of President Charles Taylor. From a bridge leading into Monrovia, the capital, a band of child soldiers in Taylor's army were returning rebel fire. Their commander, shirtless and dreadlocked, spotted a news photographer in the vicinity and issued an order in Liberian patois: "Oh good, white man, you come on bridge!"

Chris Hondros, a photographer for Getty Images News Services, complied, dodging bullets along the way. As Hondros approached the soldiers, the commander grabbed a rocket launcher and fired. As the rocket detonated amid a group of attacking rebels, he turned toward Hondros, leapt and issued a battle cry. The photographer clicked his shutter.

The resulting image—an instant of adrenaline-powered glee—appeared on front pages and in magazines from France to Japan to the United States. It was plastered on train station benches in Amsterdam and discussed in art galleries in Colorado, North Carolina and Pennsylvania. It became a defining image of Liberia's protracted strife.

"Sometimes a picture captures things that people respond to," says Hondros. "This is a picture of fighting that shows some of the uncomfortable realities of war. One of those is that [some] people in war enjoy it—they get a bloodlust."

The commander has his own response to the picture: "I was happy at that time because I was defending my country," he says, speaking through an interpreter. But he doesn't like to look at the image now. "It gives me the memories of war," he says.

"I was defending my country," says Duo, who began fighting early in Liberia's 14-year civil war.

"How do a man join with the U.S. Marines?" Duo asked his new friend.

Duo (above, on the bridge where he fought) is now attending night school; Hondros (below) paid his tuition of $86—an amount beyond the means of almost all Liberians.

His name is Joseph Duo. He is 28. He dropped out of the tenth grade to join the army early in Liberia's civil war. After the fighting ended and Taylor fled into exile in August 2003, Duo was out of a job, with no means of supporting his wife and three children.

Hondros found this out last October. He had been unable to get the commander's image out of his mind—the way he stares into, or through, the camera. "The illusion of eye contact gives the picture intimacy," says the photographer. "He's nakedly exulting in battle, and he's looking at you unabashedly." When Hondros returned to Liberia to cover the country's first postwar elections in October 2005, he asked his Liberian assistant about the soldier. The man drove him to a squalid settlement at the edge of Monrovia, where Duo emerged from a concrete shack, a shirt on his back and his dreadlocks gone. Hondros was a bit surprised to see that his new acquaintance stands about 5-foot-3—much shorter than in the photographer's memory. After sharing their impressions of the day they first met, Hondros suggested they return together to the bridge, now bustling with traffic, and Duo agreed. Standing at the same spot he'd stood in 2003, Duo grinned shyly for a postwar portrait.

When rain began to fall, the men ducked under an awning. Duo asked Hondros a question: "How do a man join with the U.S. Marines?"

Hondros, taken aback, made it clear that Duo had little chance of meeting the Marines' education, language and residency standards. Seeing Duo's disappointment, Hondros asked if he wanted to go to school. Duo said yes.

Within a few days, Hondros had enrolled Duo in night school, paying $86 for a year's tuition—a prohibitive sum for almost all Liberians. When Hondros left the country, Duo assured him he would not let him down.

Hondros returned to Liberia for November's runoff elections, when Liberians chose Ellen Johnson-Sirleaf as their president, the first woman to be elected head of state in modern African history. Duo's school notebooks were full of sentences detailing the Trojan War and the colors in the spectrum. "I hope for him to finish school and become a productive part of Liberian society," Hondros says.

After 14 years of civil war and two years of uncertainty, Liberian society has a long way to go. It has no shortage of people who, like Joseph Duo, are trying to find their way. "In American terms," Hondros says, "Joseph's mindset and situation are similar to that of an inner-city youth who spent ten years in a gang; he's now trying to get out of that and rejoin society."

The former commander—now a high-school junior—has perfect attendance. With his army training, he says, "it's not difficult to take instructions from a teacher," noting that "the military is a science dealing with instructions [that] must be followed." And despite Duo's painful memories of war, he still likes the idea of military life: someday, he'd like to be a general in the army.

"I am happy I am still alive," Duo says. "I am happy I have a peaceful life."

CHRISTINE DELL'AMORE has just finished an internship at the magazine.

P. 20 22 TOP: CHRIS HONDROS / GETTY IMAGES; CHRIS HONDROS COLLECTION

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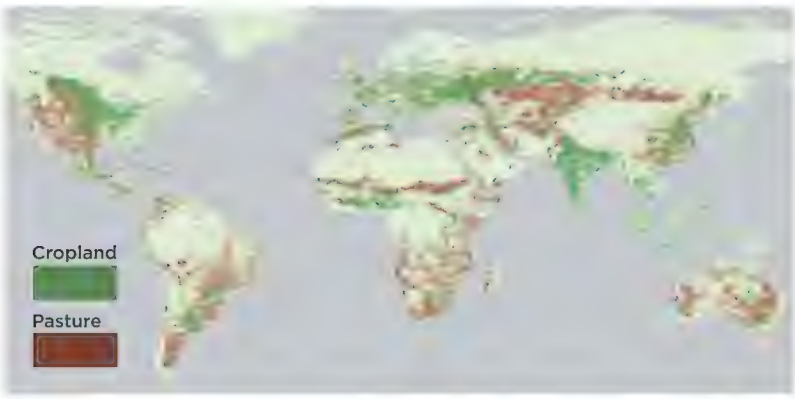
Wild Things

- LIFE AS WE KNOW IT -

WHAT'S UP? Some fungi launch spores with a force 10,000 times that of earth's gravity. • Locusts crossed the Atlantic about 4 million years ago.



LONG ROW TO HOE

HUMANITY'S NEED FOR FOOD IS GOBBLING UP TERRA FIRMA. NEARLY 40 PERCENT OF THE EARTH'S LANDMASS IS NOW USED TO GROW CROPS OR GRAZE ANIMALS, COMPARED WITH ABOUT 25 PERCENT A CENTURY AGO. IN A NEW STUDY, UNIVERSITY OF WISCONSIN RESEARCHERS MERGED SATELLITE IMAGES AND GROUND-LEVEL SURVEYS TO TRACK GLOBAL LAND USE. MOST NOTICEABLE, SAYS NAVIN RAMANKUTTY, IS THE RAPID EXPANSION OF SOYBEAN FARMING IN SOUTH AMERICA, WHICH EXPORTS MOST OF ITS CROP TO CHINA. EVEN IN THE UNITED STATES, HE ADDS, "MUCH OF WHAT WE USED TO CALL THE CORN BELT IS NOW IN SOYBEANS."

HUGE HANGOVER?

Legend has it African elephants become inebriated eating fermented fruit from the marula tree. But University of Bristol scientists say that the three-ton beasts can't possibly eat enough of the fruit to get tipsy. Instead, they may run amok after ingesting toxic beetle pupae found in the tree's bark.

Observed

NAME: Archaeopteryx (ark-ee-OP-ter-ix)

NOTABLE ACHIEVEMENT: The earliest known bird, from about 150 million years ago.

RECENTLY SEEN IN: A nearly complete skeleton discovered in Germany.

AND NOW IT TELLS US: The skeleton shows that the creature's hind toe did not point backward—as it does in modern birds, which helps them perch. Instead, it resembles the toe found on the dinosaurs that archaeopteryx evolved from. The find suggests that this early bird did not perch in trees, lending support to the theory that bird flight evolved from the ground up, rather than from trees down.

SWADDLED

Most squid bear their young without much fuss—the female lays fertilized eggs on the seafloor and swims away. But a *Gonatus onyx* female hugs her mass of 2,000 to 3,000 eggs (above) until they hatch. Juvenile *G. onyx* are abundant in shallow waters off California and Oregon, but mature animals move to dark depths, making their reproductive habits mysterious—until Brad Seibel of the University of Rhode Island photographed this one from a submersible.

BEST INTENTIONS

AT MANY FLORIDA BEACHES WHERE SEA TURTLES NEST, PEOPLE TRAP AND REMOVE RACCOONS, WHICH FEAST ON TURTLE EGGS. BUT THE STRATEGY MAY NOT WORK, ACCORDING TO NEW RESEARCH BY YALE'S BRANDON BARTON. HE MEASURED ANIMAL TRAFFIC AT FOUR WILDLIFE RESERVES NEAR CAPE CANAVERAL AND FOUND THAT BEACHES WITH FEWER RACCOONS HAD MORE GHOST CRABS. TROUBLE IS, GHOST CRABS, TOO, EAT SEA TURTLE EGGS. HIS CONCLUSION: RACCOON CONTROL MAY NOT IMPROVE THE PROSPECTS OF FLORIDA'S FOUR SEA TURTLE SPECIES (BELOW, A BABY LOGGERHEAD), ALL OF WHICH ARE THREATENED OR ENDANGERED.

AMATO EVAN / UNIVERSITY OF WISCONSIN - MADISON; MARTIN HARVEY / ALAMY; ERIC CHENG; MONTEREY BAY AQUARIUM RESEARCH INSTITUTE; G. MATR / FORSCHUNGSINSTITUT SENCKENBERG, GERMANY

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HONDA

Take my medicine every day?
HIGH BLOOD PRESSURE
can't be that serious.
Yes it is serious. You need to
take your TOPROL-XL every day.
No ifs, ands, or buts...

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high blood pressure matters more than you know.

It's always with you, even on those days you seem to feel okay. And high blood pressure can make your heart work harder than it should. That's why it's such a big deal—just ask your doctor.

You need to exercise, eat healthy, and take your TOPROL-XL—not just most days, but every day.

As long as you keep taking it, TOPROL-XL works to help you manage your blood pressure—throughout the day. And yes, that means every day.

Important information you should know about TOPROL-XL (by prescription only)

TOPROL-XL is used to treat high blood pressure. It's good to know the medicine you're taking, so talk to your doctor about high blood pressure and TOPROL-XL.

TOPROL-XL is not right for everyone, especially people who have the following health conditions.

- Extreme slowing of the heart rate (severe bradycardia)
- Sudden and severe drop in the blood pressure and blood flow through the body because the heart is not pumping normally (cardiogenic shock)
- Uncontrolled heart failure
- Slowdown of the heart's electrical signal causing a slower heart rate (specifically, second- or third-degree heart block)
- Damage to the heart's natural pacemaker that affects the heart's rhythm [unless a pacemaker device is in the body] (sick sinus syndrome)
- Any allergies to TOPROL-XL or its ingredients

It is important to take your medications every day as directed by your doctor.

Patients should not stop taking TOPROL-XL suddenly because of the possibility of serious side effects, such as chest pain or a heart attack. If your doctor decides you should stop taking TOPROL-XL, your doctor or health care provider may instruct you to slowly reduce your dose over a period of time before stopping it completely.

In some patients, TOPROL-XL should be used with caution: Those with asthma or asthma-like lung disease; taking certain calcium channel blockers; have diabetes; overactive thyroid disease; hardening or constriction of the arteries in the arms or legs; or those planning to have surgery.

Until you know how you will react to TOPROL-XL, avoid activities that require alertness.

The most common side effects reported by patients in clinical trials were tiredness, dizziness, depression, diarrhea, itching or rash, shortness of breath, and slow heart rate. If you experience any of these or other side effects, contact your doctor.

Need answers? Contact AstraZeneca

Visit TOPROL-XL.com/ad or call 877-564-6442

- **Find more information on TOPROL-XL**
- **Join Heart Horizons, a free support program with helpful tips, special offers, and information for people who take TOPROL-XL**
- **Learn how we may be able to help if you do not have prescription coverage and cannot afford your medicines**

Please see adjacent page for a brief summary of full Prescribing Information.

TAKE IT. SERIOUSLY.

TOPROL-XL®
(metoprolol succinate)
extended-release tablets

AstraZeneca

Please read this summary carefully and then ask your doctor about TOPROL-XL. Do not stop treatment without first talking with your doctor. No advertisement can provide all the information needed to determine if a drug is right for you. This advertisement does not take the place of careful discussions with your doctor. Only your doctor has the training to weigh the risks and benefits of a prescription drug.

ONCE-A-DAY

TOPROL-XL®

(metoprolol succinate) extended-release tablets 25 mg 50 mg 100 mg 200 mg

BRIEF SUMMARY: For full Prescribing Information, see package insert.

INDICATIONS AND USAGE

Hypertension: TOPROL-XL is indicated for the treatment of hypertension. It may be used alone or in combination with other antihypertensive agents. **Angina Pectoris:** TOPROL-XL is indicated in the long-term treatment of angina pectoris. **Heart Failure:** TOPROL-XL is indicated for the treatment of stable, symptomatic (NYHA Class II or III) heart failure of ischemic, hypertensive, or cardiomyopathic origin. It was studied in patients already receiving ACE inhibitors, diuretics, and, in the majority of cases, digitalis. In this population, TOPROL-XL decreased the rate of mortality plus hospitalization, largely through a reduction in cardiovascular mortality and hospitalizations for heart failure.

CONTRAINDICATIONS

TOPROL-XL is contraindicated in severe bradycardia, heart block greater than first degree, cardiogenic shock, decompensated cardiac failure, sick sinus syndrome (unless a permanent pacemaker is in place) (see WARNINGS) and in patients who are hypersensitive to any component of this product.

WARNINGS

Ischemic Heart Disease: Following abrupt cessation of therapy with certain beta-blocking agents, exacerbations of angina pectoris and, in some cases, myocardial infarction have occurred. When discontinuing chronically administered TOPROL-XL, particularly in patients with ischemic heart disease, the dosage should be gradually reduced over a period of 1–2 weeks and the patient should be carefully monitored. If angina markedly worsens or acute coronary insufficiency develops, TOPROL-XL administration should be reinstated promptly, at least temporarily, and other measures appropriate for the management of unstable angina should be taken. Patients should be warned against interruption or discontinuation of therapy without the physician's advice. Because coronary artery disease is common and may be unrecognized, it may be prudent not to discontinue TOPROL-XL therapy abruptly even in patients treated only for hypertension.

Bronchospastic Diseases: PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD, IN GENERAL, NOT RECEIVE BETA-BLOCKERS. Because of its relative $beta_1$-selectivity, however, TOPROL-XL may be used with caution in patients with bronchospastic disease who do not respond to, or cannot tolerate, other antihypertensive treatment. Since $beta_1$-selectivity is not absolute, a $beta_2$-stimulating agent should be administered concomitantly, and the lowest possible dose of TOPROL-XL should be used (see DOSAGE AND ADMINISTRATION). ***Major Surgery:*** The necessity or desirability of withdrawing beta-blocking therapy prior to major surgery is controversial; the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures. TOPROL-XL like other beta-blockers, is a competitive inhibitor of beta-receptor agonists, and its effects can be reversed by administration of such agents, eg, dobutamine or isoproterenol. However, such patients may be subject to protracted severe hypotension. Difficulty in restarting and maintaining the heart beat has also been reported with beta-blockers. ***Diabetes and Hypoglycemia:*** TOPROL-XL should be used with caution in diabetic patients if a beta-blocking agent is required. Beta-blockers may mask tachycardia occurring with hypoglycemia, but other manifestations such as dizziness and sweating may not be significantly affected. ***Thyrotoxicosis:*** Beta-adrenergic blockade may mask certain clinical signs (eg, tachycardia) of hyperthyroidism. Patients suspected of developing thyrotoxicosis should be managed carefully to avoid abrupt withdrawal of beta-blockade, which might precipitate a thyroid storm. ***Peripheral Vascular Disease:*** Beta-blockers can precipitate or aggravate symptoms of arterial insufficiency in patients with peripheral vascular disease. Caution should be exercised in such individuals. ***Calcium Channel Blockers:*** Because of significant inotropic and chronotropic effects in patients treated with beta-blockers and calcium channel blockers of the verapamil and diltiazem type, caution should be exercised in patients treated with these agents concomitantly.

PRECAUTIONS

General: TOPROL-XL should be used with caution in patients with impaired hepatic function. In patients with pheochromocytoma, an alpha-blocking agent should be initiated prior to the use of any beta-blocking agent. Worsening cardiac failure may occur during up-titration of TOPROL-XL. If such symptoms occur, diuretics should be increased and the dose of TOPROL-XL should not be advanced until clinical stability is restored (see DOSAGE AND ADMINISTRATION). It may be necessary to lower the dose of TOPROL-XL or temporarily discontinue it. Such episodes do not preclude subsequent successful titration of TOPROL-XL. **Information for Patients:** Patients should be advised to take TOPROL-XL regularly and continuously, as directed, preferably with or immediately following meals. If a dose should be missed, the patient should take only the next scheduled dose (without doubling it). Patients should not interrupt or discontinue TOPROL-XL without consulting the physician. Patients should be advised (1) to avoid operating automobiles and machinery or engaging in other tasks requiring alertness until the patient's response to therapy with TOPROL-XL has been determined; (2) to contact the physician if any difficulty in breathing occurs; (3) to inform the physician or dentist before any type of surgery that he or she is taking TOPROL-XL. Heart failure patients should be advised to consult their physician if they experience signs or symptoms of worsening heart failure such as weight gain or increasing shortness of breath. **Laboratory Tests:** Clinical laboratory findings may include elevated levels of serum transaminase, alkaline phosphatase, and lactate dehydrogenase. **Drug Interactions:** Catecholamine-depleting drugs (eg, reserpine, mono amine oxidase (MAO) inhibitors) may have an additive effect when given with beta-blocking agents. Patients treated with TOPROL-XL plus a catecholamine depletor should therefore be closely observed for evidence of hypotension or marked bradycardia, which may produce vertigo, syncope, or postural hypotension. Drugs that inhibit CYP2D6 such as quinidine, fluoxetine, paroxetine, and propafenone are likely to increase metoprolol concentration. In healthy subjects with CYP2D6 extensive metabolizer phenotype, coadministration of quinidine 100 mg and immediate release metoprolol 200 mg tripled the concentration of S-metoprolol and doubled the metoprolol elimination half-life. In four patients with cardiovascular disease, coadministration of propafenone 150 mg t.i.d. with immediate release metoprolol 50 mg t.i.d. resulted in two- to five-fold increases in the steady-state concentration of metoprolol. These increases in plasma concentration would decrease the cardioselectivity of metoprolol. Beta-blockers may exacerbate the rebound hypertension which can follow the withdrawal of clonidine. If the two drugs are coadministered, the beta blocker should be withdrawn several days before the gradual withdrawal of clonidine. If replacing clonidine by beta-blocker therapy, the introduction of beta-blockers should be delayed for several days after clonidine administration has stopped. **Carcinogenesis, Mutagenesis, Impairment of Fertility:** Long-term studies in animals have been conducted to evaluate the carcinogenic potential of metoprolol tartrate. In 2-year studies in rats at three oral dosage levels of up to 800 mg/kg/day (41 times, on a mg/m^2 basis, the daily dose of 200 mg for a 60-kg patient), there was no increase in the development of spontaneously occurring benign or malignant neoplasms of any type. The only histologic changes that appeared to be drug related were an increased incidence of generally mild focal accumulation of foamy macrophages in pulmonary alveoli and a slight increase in biliary hyperplasia. In a 21-month study in Swiss albino mice at three oral dosage levels of up to 750 mg/kg/day (18 times, on a mg/m^2 basis, the daily dose of 200 mg for a 60-kg patient), benign lung tumors (small adenomas) occurred more frequently in female mice receiving the highest dose than in untreated control animals. There was no increase in malignant or total (benign plus malignant) lung tumors, nor in the overall incidence of tumors or malignant tumors. This 21-month study was repeated in CD-1 mice, and no statistically or biologically significant differences were observed between treated and control mice of either sex for any type of tumor. All genotoxicity tests performed on metoprolol tartrate (a dominant lethal study in mice, chromosome studies in somatic cells, a *Salmonella*/mammalian-microsome mutagenicity test, and a nucleus anomaly test in somatic interphase nuclei) and metoprolol succinate (a *Salmonella*/mammalian-microsome mutagenicity test) were negative. No evidence of impaired fertility due to metoprolol tartrate was observed in a study performed in rats at doses up to 22 times, on a mg/m^2 basis, the daily dose of 200 mg in a 60-kg patient. **Pregnancy Category C:** Metoprolol tartrate has been shown to increase post-implantation loss and decrease neonatal survival in rats at doses up to 22 times, on a mg/m^2 basis, the daily dose of 200 mg in a 60-kg patient. Distribution studies in mice confirm exposure of the fetus when metoprolol tartrate is administered to the pregnant animal. These studies have revealed no evidence of impaired fertility or teratogenicity. There are no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed. **Nursing Mothers:** Metoprolol is excreted in breast milk in very small quantities. An infant consuming 1 liter of breast milk daily would receive a dose of less than 1 mg of the drug. Caution should be exercised when TOPROL-XL is administered to a nursing woman. **Pediatric Use:** Safety and effectiveness in pediatric patients have not been established. **Geriatric Use:** Clinical studies of TOPROL-XL in hypertension did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience in hypertensive patients has not identified differences in responses between elderly and younger patients. Of the 1,990 patients with heart failure randomized to TOPROL-XL in the MERIT-HF trial, 50% (990) were 65 years of age and older and 12% (238) were 75 years of age and older. There were no notable differences in efficacy or the rate of adverse events between older and younger patients. In general, dose selection for an elderly patient should be cautious, usually starting at the low end of the dosing range, reflecting greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy. **Risk of Anaphylactic Reactions:** While taking beta-blockers, patients with a history of severe anaphylactic reactions to a variety of allergens may be more reactive to repeated challenge, either accidental, diagnostic, or therapeutic. Such patients may be unresponsive to the usual doses of epinephrine used to treat allergic reaction.

ADVERSE REACTIONS

Hypertension and Angina: Most adverse effects have been mild and transient. The following adverse reactions have been reported for immediate release metoprolol tartrate. *Central Nervous System:* Tiredness and dizziness have occurred in about 10 of 100 patients. Depression has been reported in about 5 of 100 patients. Mental confusion and short-term memory loss have been reported. Headache, somnolence, nightmares, and insomnia have also been reported. *Cardiovascular:* Shortness of breath and bradycardia have occurred in approximately 3 of 100 patients. Cold extremities; arterial insufficiency, usually of the Raynaud type; palpitations; congestive heart failure; peripheral edema; syncope; chest pain; and hypotension have been reported in about 1 of 100 patients (see CONTRAINDICATIONS, WARNINGS and PRECAUTIONS). *Respiratory:* Wheezing (bronchospasm) and dyspnea have been reported in about 1 of 100 patients (see WARNINGS). *Gastrointestinal:* Diarrhea has occurred in about 5 of 100 patients. Nausea, dry mouth, gastric pain, constipation, flatulence, digestive tract disorders, and heartburn have been reported in about 1 of 100 patients. *Hypersensitive Reactions:* Pruritus or rash have occurred in about 5 of 100 patients. Worsening of psoriasis has also been reported. *Miscellaneous:* Peyronie's disease has been reported in fewer than 1 of 100,000 patients. Musculoskeletal pain, blurred vision, decreased libido and tinnitus have also been reported. There have been rare reports of reversible alopecia, agranulocytosis, and dry eyes. Discontinuation of the drug should be considered if any such reaction is not otherwise explicable. The oculomucocutaneous syndrome associated with the beta-blocker practolol has not been reported with metoprolol. **Potential Adverse Reactions:** In addition, there are a variety of adverse reactions not listed above, which have been reported with other beta-adrenergic blocking agents and should be considered potential adverse reactions to TOPROL-XL. *Central Nervous System:* Reversible mental depression progressing to catatonia; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometrics. *Cardiovascular:* Intensification of AV block (see CONTRAINDICATIONS). *Hematologic:* Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura. *Hypersensitive Reactions:* Fever combined with aching and sore throat, laryngospasm, and respiratory distress. **Heart Failure:** In the MERIT HF study, serious adverse events and adverse events leading to discontinuation of study medication were systematically collected. In the MERIT-HF study comparing TOPROL-XL in daily doses up to 200 mg (mean dose 159 mg once-daily) (n=1990) to placebo (n=2001), 10.3% of TOPROL-XL patients discontinued for adverse events vs. 12.2% of placebo patients. The table below lists adverse events in the MERIT-HF study that occurred at an incidence of equal to or greater than 1% in the TOPROL-XL group and greater than placebo by more than 0.5%, regardless of the assessment of causality.

Adverse Events Occurring in the MERIT-HF Study at an Incidence ≥1% in the TOPROL-XL Group and Greater Than Placebo by More Than 0.5%

	TOPROL-XL N=1990 % of patients	Placebo N=2001 % of patients
Dizziness/vertigo	1.8	1.0
Bradycardia	1.5	0.4
Accident and/or injury	1.4	0.8

Other adverse events with an incidence of > 1% on TOPROL-XL and as common on placebo (within 0.5%) included myocardial infarction, pneumonia, cerebrovascular disorder, chest pain, dyspnea/dyspnea aggravated, syncope, coronary artery disorder, ventricular tachycardia/arrhythmia aggravated, hypotension, diabetes mellitus/diabetes mellitus aggravated, abdominal pain, and fatigue. **Post-Marketing Experience:** The following adverse reactions have been reported with TOPROL-XL in worldwide post-marketing use, regardless of causality: *Cardiovascular:* 2nd and 3rd degree heart block; *Gastrointestinal:* hepatitis, vomiting; *Hematologic:* thrombocytopenia; *Musculoskeletal:* arthralgia; *Nervous System/Psychiatric:* anxiety/nervousness, hallucinations, paresthesia; *Reproductive, male:* impotence; *Skin:* increased sweating, photosensitivity, urticaria; *Special Sense Organs:* taste disturbances.

OVERDOSAGE

Acute Toxicity: There have been a few reports of overdosage with TOPROL-XL and no specific overdosage information was obtained with this drug, with the exception of animal toxicology data. However, since TOPROL-XL (metoprolol succinate salt) contains the same active moiety, metoprolol, as conventional metoprolol tablets (metoprolol tartrate salt), the recommendations on overdosage for metoprolol conventional tablets are applicable to TOPROL-XL. **Signs and Symptoms:** Overdosage of TOPROL-XL may lead to severe hypotension, sinus bradycardia, atrioventricular block, heart failure, cardiogenic shock, cardiac arrest, bronchospasm, impairment of consciousness/coma, nausea, vomiting, and cyanosis. **Treatment:** In general, patients with acute or recent myocardial infarction or congestive heart failure may be more hemodynamically unstable than other patients and should be treated accordingly. When possible the patient should be treated under intensive care conditions. On the basis of the pharmacologic actions of metoprolol, the following general measures should be employed: ***Elimination of the Drug:*** Gastric lavage should be performed. ***Bradycardia:*** Atropine should be administered. If there is no response to vagal blockade, isoproterenol should be administered cautiously. ***Hypotension:*** A vasopressor should be administered, eg, levarterenol or dopamine. ***Bronchospasm:*** A $beta_2$-stimulating agent and/or a theophylline derivative should be administered. ***Cardiac Failure:*** A digitalis glycoside and diuretics should be administered. In shock resulting from inadequate cardiac contractility, administration of dobutamine, isoproterenol, or glucagon may be considered.

DOSAGE AND ADMINISTRATION

TOPROL-XL is an extended release tablet intended for once daily administration. For treatment of hypertension and angina, when switching from immediate release metoprolol to TOPROL-XL, the same total daily dose of TOPROL-XL should be used. Dosages of TOPROL-XL should be individualized and titration may be needed in some patients. TOPROL-XL tablets are scored and can be divided; however, the whole or half tablet should be swallowed whole and not chewed or crushed. **Hypertension:** The usual initial dosage is 25 to 100 mg daily in a single dose, whether used alone or added to a diuretic. The dosage may be increased at weekly (or longer) intervals until optimum blood pressure reduction is achieved. In general, the maximum effect of any given dosage level will be apparent after 1 week of therapy. Dosages above 400 mg per day have not been studied. **Angina Pectoris:** The dosage of TOPROL-XL should be individualized. The usual initial dosage is 100 mg daily, given in a single dose. The dosage may be gradually increased at weekly intervals until optimum clinical response has been obtained or there is a pronounced slowing of the heart rate. Dosages above 400 mg per day have not been studied. If treatment is to be discontinued, the dosage should be reduced gradually over a period of 1–2 weeks (see WARNINGS). **Heart Failure:** Dosage must be individualized and closely monitored during up-titration. Prior to initiation of TOPROL-XL, the dosing of diuretics, ACE inhibitors, and digitalis (if used) should be stabilized. The recommended starting dose of TOPROL-XL is 25 mg once daily for two weeks in patients with NYHA class II heart failure and 12.5 mg once daily in patients with more severe heart failure. The dose should then be doubled every two weeks to the highest dosage level tolerated by the patient or up to 200 mg of TOPROL-XL. If transient worsening of heart failure occurs, it may be treated with increased doses of diuretics, and it may also be necessary to lower the dose of TOPROL-XL or temporarily discontinue it. The dose of TOPROL-XL should not be increased until symptoms of worsening heart failure have been stabilized. Initial difficulty with titration should not preclude later attempts to introduce TOPROL-XL. If heart failure patients experience symptomatic bradycardia, the dose of TOPROL-XL should be reduced.

HOW SUPPLIED

Tablets containing metoprolol succinate equivalent to the indicated weight of metoprolol tartrate, USP, are white, biconvex, film-coated, and scored.

Tablet	Shape	Engraving	Bottle of 100 NDC 0186-	Unit Dose Packages of 100 NDC 0186-
25 mg*	Oval	A ß	1088-05	1088-39
50 mg	Round	A mo	1090-05	1090-39
100 mg	Round	A ms	1092-05	1092-39
200 mg	Oval	A my	1094-05	N/A

*The 25-mg tablet is scored on both sides.

Store at 25°C (77°F). Excursions permitted to 15-30°C (59-86°F). (See USP Controlled Room Temperature.)

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MEDICAL SLEUTH

TO PROSECUTORS, IT WAS CHILD ABUSE—AN AMISH BABY COVERED IN BRUISES. BUT DR. D. HOLMES MORTON HAD OTHER IDEAS **BY TOM SHACHTMAN**

IT WAS EVERY PARENT'S nightmare: a few days before Christmas 1999, Elizabeth and Samuel Glick, Old Order Amish dairy farmers in rural Dornsife, Pennsylvania, an hour's drive north of Harrisburg, found their youngest child, 4-month-old Sara Lynn, gravely ill. They rushed her to a local hospital, from where she was soon transferred to the larger Geisinger Medical Center in the next county. There, a doctor noted a hemorrhage in her right eye and extensive bruising on her body, and suspected that her injuries were caused by child abuse.

Alerted to the doctor's suspicion, the police and officials from the Northumberland County Children and Youth Services descended on the Glicks' farm during the evening milking, and took away the couple's seven other children, all boys, ranging in age from 5 to 15. The boys were separated and placed in non-Amish foster homes. Sara died the next day, and

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At Sara's funeral, on Christmas Eve, Elizabeth and Samuel were not permitted to speak privately with their sons. By that time Samuel had already contacted the Clinic for Special Children in Lancaster County, and pleaded with its director, pediatrician D. Holmes Morton—the world's leading authority on genetic-based diseases of the Amish and Mennonite peoples—to find the cause of his daughter's death.

THE AMISH are Anabaptists, Protestants whose forefathers were invited by William Penn himself to settle in Pennsylvania. Today there are almost 200,000 Amish in the United States, of whom 25,000 live in Lancaster County, in southeastern Pennsylvania between Philadelphia and Harrisburg. Some of their customs and religious values have changed little over the past century.

Most people know that the Amish wear conservative clothing, travel mainly by horse and buggy, eschew most modern technologies, and refuse to use electricity from the common grid. The Amish also remove their children from formal schooling after the eighth grade, do not participate in Social Security or Medicare, and in many other ways maintain their sect's separateness from mainstream America.

But most people don't know that the Amish, and their spiritual cousins the Mennonites, experience an inordinately high incidence of certain genetic-based diseases, most of which affect very young children. Many of these afflictions are fatal or disabling, but some, if diagnosed and properly treated in time, can be managed, enabling the children to survive and lead productive lives.

That possibility—of proper diagnosis and intervention to save children's lives—was what intrigued Morton, then a recently minted M.D. on a postdoctoral fellowship. A colleague at Children's Hospital in Philadelphia asked him one evening in 1988 to analyze a urine sample from a 6-year-old Amish boy, Danny Lapp, who was mentally alert but wheelchair-bound because he had no control over his limbs—perhaps from cerebral palsy.

But when Morton analyzed the urine, he saw no evidence of cerebral palsy. Rather, in a diagnosis that must have seemed to others like the amazing deductions of Sherlock Holmes, he recognized the footprint of a genetic-based disease so rare that it had been identified in only eight cases in the world, none of them in Lancaster County. Morton's was an educated guess: he was able to recognize the disease, a metabolic disorder known as glutaric aciduria type 1, or GA-1, because it fit the pattern of diseases he had been studying for almost four years, those that lay dormant in a child's body until triggered into action.

Typically, a child with GA-1 shows no sign of the disorder until he or she comes down with an ordinary childhood respiratory infection. Then, perhaps prompted by the body's immune response, the GA-1 flares up, making the child unable to properly metabolize protein-building amino acids, which in turn causes a buildup in the brain of glutarate, a toxic chemical compound that affects the basal ganglia, the part of the brain that controls the tone and position of the limbs. The result, permanent paralysis of the arms and legs, can resemble cerebral palsy.

Sensing that there might be other GA-1 children in the deeply inbred Amish community—some of them, perhaps, treatable—Morton visited Danny Lapp and his family at their Lancaster County home. Indeed, the Lapps told him of other Amish families with similarly disabled children. "The Amish called them 'God's special children,' and said they had been sent by God to teach us how to love," says Morton. "That idea deeply affected me."

In the following months, Morton and his fellowship supervisor, Dr. Richard I. Kelley of Johns Hopkins University, visited the other families with afflicted children and collected from them enough urine and blood samples to identify a cluster of GA-1 cases among the Amish. "We very quickly were able to add to the world's knowledge base about GA-1," Richard Kelley recalls. "For a geneticist, that's exciting."

Rebecca Smoker, an Amish former schoolteacher who had lost nieces and nephews to GA-1 and now works for Morton's Clinic for Special Children, vividly remembers the sense of relief that began to spread through the close-knit Amish community. Previous doctors, Smoker recalls, had been "unable to tell parents why their children were dying," but Morton was able to identify the disease. That was comforting: "If you can say, 'my baby has this,' or 'my baby has that,' even if it's an awful thing, you can feel better about it," says Smoker.

Later in 1987, Morton began driving out from Philadelphia to Lancaster County to manage the care of children with GA-1. Many of the patients who had been previously diagnosed with cerebral palsy were paralyzed beyond repair, but there were some with less advanced paralysis whom Morton was able to help with a new treatment regimen including a restricted-protein diet and, when needed, hospital care. He also learned, through testing, that some of the affected children's younger siblings—who had not yet suffered paralysis—had the gene mutation and biochemical abnormalities. If he could manage these children through their earliest years, when they were particularly vulnerable to the effects of GA-1, he believed, as he says now, that he could "alter the likely devastating course of the disease."

Several of the children came down with respiratory infections in the months that followed. Morton's strategy—"immediately getting them to a hospital, giving them IV glucose and fluids, anticonvulsants, and reducing their protein intake to get them past the crisis points"—worked, and they escaped without severe injury to their basal ganglia. Morton had gone beyond giving the horror its proper name; he had found ways for Amish parents to help save their other children from the ravages of the disease.

NOW, NEARLY A DECADE LATER, Sara Lynn Glick's death presented Morton with a new challenge. He was determined to figure out what had killed her, to exonerate Elizabeth and

The Amish say disabled children are "sent by God to teach us how to love," says Morton. "That idea deeply affected me."

Samuel Glick, and to help them retrieve their seven sons from non-Amish foster homes.

Morton's first clue to what had actually happened to Sara came in a conversation with her mother. "Liz Glick told me that she had to put socks on Sara's hands, because Sara had been scratching her own face," Morton says. Such scratching, he knew, was a likely sign of an underlying liver disease. Another clue was that Sara had been born at home, where a midwife had not given her a vitamin K shot—standard procedure for hospital-born babies, who are given the shot to ensure that their blood will clot properly.

Morton concluded that Sara's death was due not to child abuse but to a combination of genetic disorders: a vitamin K deficiency, coupled with a bile-salt transporter disorder that he had previously found in 14 other Amish children and some of Sara's cousins.

Convincing the authorities, however, wouldn't be easy. So Morton called a friend, Philadelphia lawyer Charles P. Hehmeyer. "You're always looking for good pro bono cases," Morton remembers telling Hehmeyer. "Well, here's a doozy." Together, they went to see the Glicks in Dornsife, where they sat in a candlelit kitchen, long after dark, as Liz Glick asked through tears if she would be going to jail.

Sure of his diagnosis, Morton went—uninvited—to a meeting between doctors and the district attorney's office at Geisinger Medical Center, hoping to point out that the hospital's own records would conclusively demonstrate that Sara's injuries had not come from child abuse. He was shown the door.

THE CLINIC for Special Children in Strasburg, Pennsylvania, lies only a few hundred miles from Morton's childhood home in Fayetteville, West Virginia. But for him the journey was long and full of unexpected turns. The second youngest of a coal miner's four sons, Holmes flunked all of his science classes in high school, sank to the bottom of his class and withdrew before graduation. "I was never an easy person to teach," he admits. "I was always doubting, questioning, arguing." He took a job in an engine and boiler room of a freighter on the Great Lakes—"my first encounter," he says, "with people who were very intelligent but had little higher education." Focusing on practical shipboard problems and doing plenty of physical labor were a spur to developing his mind: within a few years he passed an examination for a commercial license to operate the boilers, and, then completed his high-school equivalency degree.

Drafted in 1970, Morton spent four years "working the Navy's boilers"; off duty he read about, and then took correspondence courses in, neurology, math, physics and psychology. After the Navy, he enrolled at Trinity College in Hartford, Connecticut, volunteered at a children's hospital and set his sights on a medical degree.

At Harvard Medical School Morton developed an interest in what he calls "biochemical disorders that cause episodic illnesses." Like a sudden storm troubling a ship on the Great Lakes, these disorders disrupt in a seemingly static environment and do great damage—maybe irrevocable damage. But afterward everything is calm again. As a resi-

ILLUSTRATIONS BY BILL FIRESTONE

With their intermarriage, careful record-keeping and isolation from the mainstream, the Amish are "a geneticist's dream."

dent at Boston Children's Hospital in 1984, Morton met a child who had been diagnosed by the admitting physician as having Reye's syndrome, a buildup of pressure in the brain and an accumulation of fat in the liver and other organs that often occurs during a viral infection such as the flu or chicken pox. Morton thought the diagnosis mistaken, substituted his own—a metabolic disorder—and accordingly changed the child's diet and treatment regimen. The child recovered and now lives a normal life, and the case gave Morton the confidence, three years later, to discount the cerebral palsy diagnosis for Danny Lapp and diagnose him with GA-1 instead.

ANOTHER SUCH "EPISODIC" disease, this one not found among the Amish but among the much larger Mennonite community, had piqued his interest in the late 1980s. Like the Amish, the Mennonites are Anabaptists. But they use some modern technologies, such as internal-combustion engines, electricity and telephones in the home.

Enos and Anna Mae Hoover, Mennonite organic dairy farmers in Lancaster County, lost three of their ten children, and had a fourth suffer permanent brain damage, before Morton arrived on the scene. Their ordeal began in 1970 with the birth of their second child. When the child became ill, refusing the bottle and going into spasms, "the doctors had no idea what was wrong," Enos recalls in a low, even voice. When the boy was 6 days old he fell into a coma, and he died a week later at a local hospital. Four years later, when an infant daughter refused to nurse, the Hoovers took her to a larger hospital, where a sweet smell in her diaper finally alerted doctors to what was afflicting her and had killed her brother: Maple Syrup Urine Disease, or MSUD, which prevents the body from properly processing proteins in food. By then, however, the little girl had already suffered irreparable brain injuries. "Even with a later baby, it took three to four days to get a proper diagnosis," Enos says. "We missed the crucial days where better treatment could have made a difference. Then a doctor asked us if we'd like to meet a Doctor Morton. We said yes, and we were amazed when he came to our house. No other doctor had ever come to see us or our babies."

Around the time of Morton's first visits with Enos and Anna Mae Hoover, he was realizing, as he would later write, that the "economic and academic goals of university hospitals" seemed to be "at odds with the care of children with interesting illnesses." He concluded from his work with GA-1 and MSUD children that the best place to study and care for them was not in a laboratory or a teaching hospital but in the field, from a base in the area where they lived. With his wife, Caroline, a fellow West Virginian who holds a master's degree in education and public policy from Harvard and had worked with rural communities and schools, Morton envisioned a free-standing clinic for Amish and Mennonite children who have rare genetic diseases.

Enos Hoover helped raise some money for the Mortons' dream within the Mennonite community, and Jacob Stoltz-

As the skyline says bon voyage,
she edges her way into the Atlantic.
An orchestra plays to the rhythm
of beating hearts
about to be swept away.
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foos, grandfather of a child with GA-1 saved by Morton's intervention, did the same among the Amish. Stoltzfoos also donated farmland in the small town of Strasburg for a clinic. Both Hoover and Stoltzfoos eventually accepted invitations to serve on the board of the as-yet unbuilt clinic, where they joined sociologist John A. Hostetler, whose pioneering 1963 book, *Amish Society*, first drew medical researchers' attention to potential clusters of genetic disorders among Pennsylvania's rural Anabaptists.

As Hostetler's book makes clear, says Dr. Victor A. McKusick of Johns Hopkins University, the founding father of medical genetics, the Amish "keep excellent records, live in a restricted area and intermarry. It's a geneticist's dream." In 1978, McKusick published his own compilation, *Medical Genetic Studies of the Amish*, identifying more than 30 genetic-based diseases found among the Amish, ranging from congenital deafness and cataracts to fatal brain swellings and muscular degeneration. Some had never been known before at all, while others had been identified only in isolated, non-Amish cases. "The diseases are hard to identify in the general population because there are too few cases, or the cases don't occur in conjunction with one another, or the records to trace them back are incomplete," McKusick explains. He adds that Morton, by identifying new diseases and by developing treatment profiles for diseases like GA-1 and MSUD, is not only building on the foundation that McKusick and Hostetler laid: he's been able to create treatment protocols that doctors around the world can use to care for patients with the same disorders.

"It took weeks to get a proper diagnosis. We missed the crucial days where better treatment could have made a difference."

But back in 1989, despite the efforts of Hoover, Stoltzfoos, Hostetler, and Lancaster County's Amish and Mennonite communities, there was still not enough money to build the free-standing clinic the Mortons wanted. Then Frank Allen, a staff reporter for the *Wall Street Journal*, wrote a front-page article about accompanying Morton on house calls to Amish patients, mentioning that Holmes and Caroline were prepared to place a second mortgage on their home to build the clinic and to buy a particularly critical piece of laboratory equipment made by Hewlett-Packard. Company founder David Packard read the article and immediately donated the machine; other *Journal* readers sent in money, and the clinic was on its way.

There was still no building, but the money and machinery were put to use in rented quarters, allowing the screening of newborns for GA-1 and MSUD. And then, on a rainy Saturday in November 1990, dozens of Amish and Mennonite woodworkers, construction experts and farmers erected the barnlike structure of the Clinic for Special Children, stopping only for lunch served by a battalion of Amish and Mennonite women.

EARLY IN THE YEAR 2000, pressure from Hehmeyer, Morton and local legislators—and from a public alerted by newspaper stories—pushed the Children and Youth Services to move the seven Glick children from non-Amish foster homes into Amish homes near their farm. In late February the boys were returned to their parents. But Samuel and Elizabeth remained under investigation for child abuse in connection with Sara's death. A week later, the Northumberland District Attorney's office turned over the most important piece of evidence—Sara's brain—to outside investigators. At the Philadelphia Medical Examiner's Office, Dr. Lucy B. Rorke, chief pathologist of Children's Hospital in Philadelphia and an expert on the pathology of child abuse, examined it during a teaching session with other doctors and students, and quickly concluded that Sara had not died of trauma or abuse.

A few weeks later, the Glicks, who had never been formally charged, were entirely cleared of suspicion. The family was relieved, and Morton was inspired: he accelerated his efforts to find the precise genetic locus of the bile-salt transporter disease so the clinic could better identify and treat it. Most newborns in Lancaster County were already being screened for a handful of the diseases that afflict Amish and Mennonite children. Morton wanted to add to the list the disease that took Sara Lynn Glick's life.

"We don't pick problems to research," says the Clinic for Special Children's Dr. Kevin Strauss. "The problems choose us. Families come in with questions—'Why isn't my child developing properly?' 'Why is this happening?' 'What causes that?'—and we look for the answers." Strauss, a Harvard-trained pediatrician, joined the clinic because he agreed with its operating philosophy. "If you want to understand medicine, you have to study living human beings," he says. "It's the only way to translate advances in molecular research into practical clinical interventions. You can't really comprehend a disease like MSUD, and treat it properly, without involving biology, infections, diet, amino acid transport, brain chemistry, tissues and a lot more."

When Morton began his work among the Amish and Mennonites, fewer than three dozen recessive genetic disorders had been identified in the groups; today, mostly as a result of the clinic's work, some five dozen are known. Cases of GA-1 have come to light in Chile, Ireland and Israel, and of MSUD in India, Iran and Canada.

The clues come from anywhere: working with one Amish family, Morton learned that a 14-year-old girl had kept a diary while caring for a terminally ill sister. Using information from the diary and other patients, the clinic was able to help map

dunes have a colour here, *brilliant as gold.*
skies have a colour here, *deeper than ink.*
valour has a colour here, *on the faces of men.*
beauty has a colour here, *in the swaying of skirts.*
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the gene mutation for a syndrome responsible for the crib deaths of 20 infants in nine Amish families—with implications, perhaps, for progress in solving SIDS (Sudden Infant Death Syndrome), which kills thousands of children each year in the larger population.

And at a Mennonite wedding two summers ago, family members rolled up their sleeves to have their blood drawn by Morton, Strauss and a clinic nurse. The team was trying to pinpoint a genetic defect that made the males of the family susceptible to a form of meningitis that had killed two of them. The tests revealed that, of the 63 people whose blood was drawn at the wedding, a dozen males were at high risk, and 14 of the women were carriers. The men were put on penicillin, vaccinated and given stashes of antibiotic to take if they became ill. Shortly after the wedding, the combination of antibiotics and immediate hospital care prevented one man from succumbing to a meningitis attack, possibly saving his life. "Genetics in action," Morton comments.

But Morton's approach to identifying and treating a disease is more than mere genetics. On an average morning, the clinic's waiting room looks like any pediatrician's office—albeit with most adults in traditional Amish and Mennonite dress—

"Most of the kids here have genetic diseases that can kill them," says one doctor at the Clinic for Special Children.

with children crawling about on the floor, playing with toys or sitting as their mothers read them books. The appearance of normalcy is actually deceiving, says Kevin Strauss. "Most of the kids here today have genetic diseases that, left untreated, can kill them or lead to permanent neurological disability." Parents have brought their children, some from as far away as India, not only for the clinic's renowned research capabilities but for its treatment. Donald B. Kraybill, one of the foremost scholars of the Amish, and the Senior Fellow of Elizabethtown College's Young Center for Anabaptist and Pietist Studies, praises Morton's "culturally sensitive manner," which he says has won Morton the "admiration, support and unqualified blessing of the Old Order communities."

The communities' support is expressed, in part, through an annual series of auctions to benefit the clinic that are held by the Amish and Mennonites across Pennsylvania. These auctions raise several hundred thousand dollars of the clinic's annual $1 million budget. Another chunk of the budget is covered by outside contributors, and the remainder comes from the clinic's modest fees—"$50 for a lab test that a university hospital has to charge $450 for," notes Enos Hoover.

About two years after Sara Glick's death, Morton, Strauss, clinic lab director Erik Puffenberger, who holds a doctorate in genetics, and researcher Vicky Carlton from the University of California at San Francisco located the precise genetic site of the bile-salt transporter disorder, and devised a test that could tell doctors whether an infant might have it. If the test is done at birth, or at the first sign of a problem, no family will ever have to repeat the Glicks' ordeal.

Or, perhaps, any other ordeal caused by diseases passed on genetically in the Amish and Mennonite communities. Morton and his colleagues believe that they're within a few years of realizing a long-term dream: placing, on a single microchip, fragments of all the known genetic diseases of the Amish and Mennonites, so that when a child is born, it will be possible to learn—from comparing a small blood sample from the child with the DNA information on the microchip—whether he or she may be affected by any of a hundred different conditions, thus allowing doctors to take immediate treatment steps and prevent harm from coming to the child.

The clinic's use of genetic information as the basis of diagnosis and the individualized treatment of patients make it "the best primary care facility of its type that exists anywhere," says G. Terry Sharrer, curator of the Smithsonian's Division of Science, Medicine and Society. And he suggests an analogy: over a hundred years ago, when Louis Pasteur's germ theory of disease replaced the four humors theory, it took decades for a majority of doctors to understand and adopt the new approach. "Most of the switching didn't occur until the next generation came out of medical school. Something similar is happening now with gene-specific diagnoses and treatment, as the aging baby-boom generation demands more effective medicine. The Clinic for Special Children shows that health care can be reasonably priced, highly tailored to patients and conducted in simply managed circumstances."

If Sharrer is right, the clinic may be a model for the future of medicine. Even if it's not, Morton's contribution has not gone unnoticed. Three years after the clinic opened its doors, he received the Albert Schweitzer Prize for Humanitarianism, given by Johns Hopkins University on behalf of the Alexander von Humboldt Foundation. On being notified of the prize, Morton began to read about Schweitzer and found that the great German physician also came to medicine late, after a distinguished career in music and theology—and that he had established his famed hospital in Gabon at age 38, the same age Morton was when he began the clinic in Strasburg. In a speech accepting the award, Morton said that Schweitzer would have understood why the Clinic for Special Children is in the middle of Lancaster County—because that "is where it is needed . . . built and supported by people whose children need the care that the clinic provides." After winning the award, partially in homage to Schweitzer and his love of Bach, Morton took up playing the violin.

TOM SHACHTMAN's Rumspringa: To Be or Not to Be Amish, *will be published in June. This is his first article for* SMITHSONIAN.

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Please see adjacent page for product brief summary.

CONSUMER BRIEF SUMMARY-CONSULT PACKAGE INSERT FOR FULL PRESCRIBING INFORMATION

HUMIRA®

(adalimumab)

Patient Information

Read this leaflet carefully before you start taking HUMIRA (**hu-mare-ah**). You should also read this leaflet each time you get your prescription refilled, in case something has changed. The information in this leaflet does not take the place of talking with your doctor before you start taking this medicine and at check ups. Talk to your doctor if you have any questions about your treatment with HUMIRA.

What is HUMIRA?

HUMIRA is a medicine that is used in people with moderate to severe rheumatoid arthritis (RA) or with psoriatic arthritis (PsA). RA is an inflammatory disease of the joints. PsA is an inflammatory disease of the joints and skin. People with RA or PsA may be given other medicines for their disease before they are given HUMIRA.

How does HUMIRA work?

HUMIRA is a medicine called a *TNF blocker*, that is a type of protein that blocks the action of a substance your body makes called TNF-alpha. TNF-alpha (tumor necrosis factor alpha) is made by your body's immune system. People with RA or PsA have too much of it in their bodies. The extra TNF-alpha in your body can attack normal healthy body tissues and cause inflammation especially in the tissues in your bones, cartilage, and joints. HUMIRA helps reduce the signs and symptoms of RA (such as pain and swollen joints), may help prevent further damage to your bones and joints, and may help improve your ability to perform daily activities. In addition, HUMIRA helps reduce the signs and symptoms of PsA (such as pain and swollen joints).

HUMIRA can block the damage that too much TNF-alpha can cause, and it can also lower your body's ability to fight infections. Taking HUMIRA can make you more prone to getting infections or make any infection you have worse.

Who should not take HUMIRA?

You should not take HUMIRA if you have an allergy to HUMIRA or to any of its ingredients (including sodium phosphate, sodium citrate, citric acid, mannitol, and polysorbate 80). The needle cover on the pre-filled syringe contains dry natural rubber. Tell your doctor if you have any allergies to rubber or latex.

What information should I share with my doctor before I start taking HUMIRA?

Tell your doctor if you have or have had any of the following:

- Any kind of infection including an infection that is in only one place in your body (such as an open cut or sore), or an infection that is in your whole body (such as the flu). Having an infection could put you at risk for serious side effects from HUMIRA. If you are unsure, please ask your doctor.
- A history of infections that keep coming back or other conditions that might increase your risk of infections.
- If you have ever had tuberculosis (TB), or if you have been in close contact with someone who has had tuberculosis. If you develop any of the symptoms of tuberculosis (a dry cough that doesn't go away, weight loss, fever, night sweats) call your doctor right away. Your doctor will need to examine you for TB and perform a skin test.
- If you experience any numbness or tingling or have ever had a disease that affects your nervous system like multiple sclerosis.
- If you are scheduled to have major surgery.
- If you are scheduled to be vaccinated for anything.

If you are not sure or have any questions about any of this information, ask your doctor.

What important information do I need to know about side effects with HUMIRA?

Any medicine can have side effects. Like all medicines that affect your immune system, HUMIRA can cause serious side effects. The possible serious side effects include:

Serious infections: There have been rare cases where patients taking HUMIRA or other TNF-blocking agents have developed serious infections, including tuberculosis (TB) and infections caused by bacteria or fungi. Some patients have died when the bacteria that cause infections have spread throughout their body (sepsis).

Nervous system diseases: There have been rare cases of disorders that affect the nervous system of people taking HUMIRA or other TNF blockers. Signs that you could be experiencing a problem affecting your nervous system include: numbness or tingling, problems with your vision, weakness in your legs and dizziness.

Malignancies: There have been very rare cases of certain kinds of cancer in patients taking HUMIRA or other TNF blockers. People with more serious RA that have had the disease for a long time may have a higher than average risk of getting a kind of cancer that affects the lymph system, called lymphoma. If you take HUMIRA or other TNF blockers, your risk may increase.

Lupus-like symptoms: Some patients have developed lupus-like symptoms that got better after their treatment was stopped. If you have chest pains that do not go away, shortness of breath, joint pain or a rash on your cheeks or arms that is sensitive to the sun, call your doctor right away. Your doctor may decide to stop your treatment.

Blood Problems: In some patients the body may fail to produce enough of the blood cells that help your body fight infections or help you to stop bleeding. If you develop a fever that doesn't go away, bruise or bleed very easily or look very pale, call your doctor right away. Your doctor may decide to stop treatment.

Heart Problems: You should tell your doctor if you have ever been treated for heart failure. If you have, your doctor may choose not to start you on HUMIRA, or may want to monitor you more closely. If you develop new or worsening problems like shortness of breath or swelling of your ankles or feet, you should call your doctor right away.

Allergic reactions: In rare cases, patients taking HUMIRA have had severe allergic reactions leading to difficulty breathing and low blood pressure, or shock. Allergic reactions can happen after your first dose or may not happen until after you have taken HUMIRA many times. If you develop a severe rash, swollen face or difficulty breathing while taking HUMIRA, call your doctor right away or seek emergency care immediately.

What are the other more common side effects with HUMIRA?

Many patients experience a reaction where the injection was given. These reactions are usually mild and include redness, rash, swelling, itching or bruising. Usually, the rash will go away within a few days. If the skin around the area where you injected HUMIRA still hurts or is swollen, try using a towel soaked with cold water on the injection site. If you have pain, redness or swelling around the injection site that doesn't go away within a few days or gets worse, call your doctor right away. Other side effects are upper respiratory infections (sinus infections), headache and nausea.

Can I take HUMIRA if I am pregnant or breast-feeding?

HUMIRA has not been studied in pregnant women or nursing mothers, so we don't know what the effects are on pregnant women or nursing babies. You should tell your health-care provider if you are pregnant, become pregnant or are thinking about becoming pregnant. If you take this medication while you are pregnant, or if you become pregnant while taking HUMIRA you are encouraged to participate in a pregnancy registry to gather additional information about the use of HUMIRA during pregnancy by calling 1-877-311-8972.

Can I take HUMIRA if I am taking other medicines for my RA, PsA or other conditions?

Yes, you can take other medicines provided your doctor has prescribed them, or has told you it is ok to take them while you are taking HUMIRA. It is important that you tell your doctor about any other medicines you are taking for other conditions (for example, high blood pressure medicine) before you start taking HUMIRA.

You should also tell your doctor about any over-the-counter drugs, herbal medicines and vitamin and mineral supplements you are taking.

You should not take HUMIRA with other TNF blockers. If you have questions, ask your doctor.

How do I take HUMIRA?

You take HUMIRA by giving yourself an injection under the skin once every other week, or more frequently (every week) if your doctor tells you to. If you accidentally take more HUMIRA than you were told to take, you should call your doctor. Make sure you have been shown how to inject HUMIRA before you do it yourself. You can call your doctor or the HUMIRA Patient Resource Center at 1-800-4HUMIRA (448-6472) if you have any questions about giving yourself an injection. Someone you know can also help you with your injection. Remember to take this medicine just as your doctor has told you and do not miss any doses.

What should I do if I miss a dose of HUMIRA?

If you forget to take HUMIRA when you are supposed to, inject the next dose right away. Then, take your next dose when your next scheduled dose is due. This will put you back on schedule.

Is one time better than another for taking HUMIRA?

Always follow your doctor's instructions about when and how often to take HUMIRA. To help you remember when to take HUMIRA, you can mark your calendar ahead of time with the stickers provided in the back of the patient information booklet. For other information and ideas you can enroll in a patient support program by calling the HUMIRA Patient Resource Center at 1-800-4HUMIRA (448-6472).

HOW DO I STORE HUMIRA?

Store at 2°C – 8°C/36-46°F (in a refrigerator) in the original container until it is used. Protect from light. DO NOT FREEZE HUMIRA. Refrigerated HUMIRA remains stable until the expiration date printed on the pre-filled syringe. If you need to take it with you, such as when traveling, store it in a cool carrier with an ice pack and protect it from light.

Keep HUMIRA, injection supplies, and all other medicines out of the reach of children.

Reference: 03-5434-R7

Revised: October, 2005

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Midwife Mary Coley (in 1952) delivered some 3,000 babies.

ROBERT GALBRAITH / ANACOSTIA MUSEUM AND CENTER FOR AFRICAN AMERICAN HISTORY AND CULTURE, S.I.; BEN STECHSCHULTE / REDUX

LABORS OF LOVE

HALF A CENTURY AGO IN GEORGIA, A PHOTOGRAPHER CAPTURED AN AFRICAN-AMERICAN MIDWIFE'S TENDER TOUCH. NOW, FOR THE FIRST TIME, THOSE PHOTOGRAPHS CAN BE SEEN

THE WOMAN rests her hand on the mother's belly, glancing at the clock on the fireplace mantel as she times the contractions. In another photograph, she's clothed in a flowing white gown and soothes a mother in the throes of giving birth. A photograph also shows her the next day, gently washing the newborn.

The caregiver is Mary Francis Hill Coley, known as Miss Mary, a black midwife in Albany, Georgia, who helped deliver more than 3,000 babies from the 1930s to the 1960s. The photographs, which offer rare glimpses of the nurturing that black midwives once provided their communities, are part of "Reclaiming Midwives," an exhibition at the Smithsonian's Anacostia Museum and Center for African American History and Culture. Focusing on midwifery in the South dating from the 17th century on, the exhibition runs until April 2006.

Galbraith, now 86: rediscovered.

Robert Galbraith took the photographs in 1952, while working as an assistant cameraman on a groundbreaking documentary about midwifery. For 12 weeks, the filmmakers shadowed Miss Mary as she made her rounds in the segregated town of about 31,000 people. She was wearing her birth robe, "draped in heavenly clothes" like an angel, Galbraith recalls: "She had a presence that was extraordinary."

He went on to become a freelance photographer, publishing work in *Life* magazine and elsewhere, but his portrait series of Miss Mary sat in a box for four decades in the basement of his home in Long Island, New York. Then, in 1995, Linda Janet Holmes, a health researcher in New Jersey and co-author of a book on black midwives, learned of the photographs from George Stoney, the documentary's director. Medical literature in the past often reflected midwives as ignorant and backward, "but these photos defied all that," says Holmes, guest curator of the Anacostia Museum show.

African-American midwives, sometimes called "granny midwives," flourished in the South from slavery times to the 1970s because many black women were denied access to healthcare. As Holmes points out, townspeople held midwives in high esteem for their skills and wisdom. For her part, Miss Mary served many other roles in her community, including spiritual adviser. "She was a voice of hope and support," says her grandson R. Bernard Coley, 54, a consultant in Palo Alto, California.

After a delivery, Coley often cooked and cared for a baby's family.

Miss Mary died in 1966 at age 66, but her story lives on in the photographs and the documentary *All My Babies*, which the Library of Congress added to its National Film Registry in 2005. The film, commissioned by the state of Georgia to teach women how to practice midwifery, was the first to cover the subject in the South, and among the first to show African-Americans as healthcare providers. Bernard says, "I see my grandmother as an icon for a whole lot of people whose stories have never been told."

—*CHRISTINE DELL'AMORE*

ROBERT GALBRAITH / ANACOSTIA MUSEUM AND CENTER FOR AFRICAN AMERICAN HISTORY AND CULTURE, S.I.; LEE STALSWORTH / SMITHSONIAN INSTITUTION ARCHIVES; JIM DINE, "FOUR HEARTS, 1969." ARS, NY / TATE GALLERY, LONDON / ART RESOURCE

FROM THE ATTIC

KING OF HEARTS No other artist has provided more target practice for cupid's Valentine's Day arrow than Jim Dine. Since the mid-1960s, he has painted and drawn hearts, sculpted hearts in plaster, bronze and steel, and constructed hearts out of chicken wire and straw. Also known for his paintings of bathrobes, Dine, who is 70 and lives in New York City, was one of the founders of the American Pop Art movement in the 1960s. His hallmark is the playful yet painterly rendering of everyday images into emotionally charged symbols. He was on hand in 1985 at the Smithsonian Institution's Hirshhorn Museum and Sculpture Garden for a Valentine's Day installation that included more than a dozen of his heart works (above, a crane lowers a 4,500-pound bronze heart, half of Dine's *Two Big Black Hearts*). "Oh, that Jim Dine," a *Washington Post* art critic wrote at the time, "he's got heart."

—*BETH PY-LIEBERMAN*

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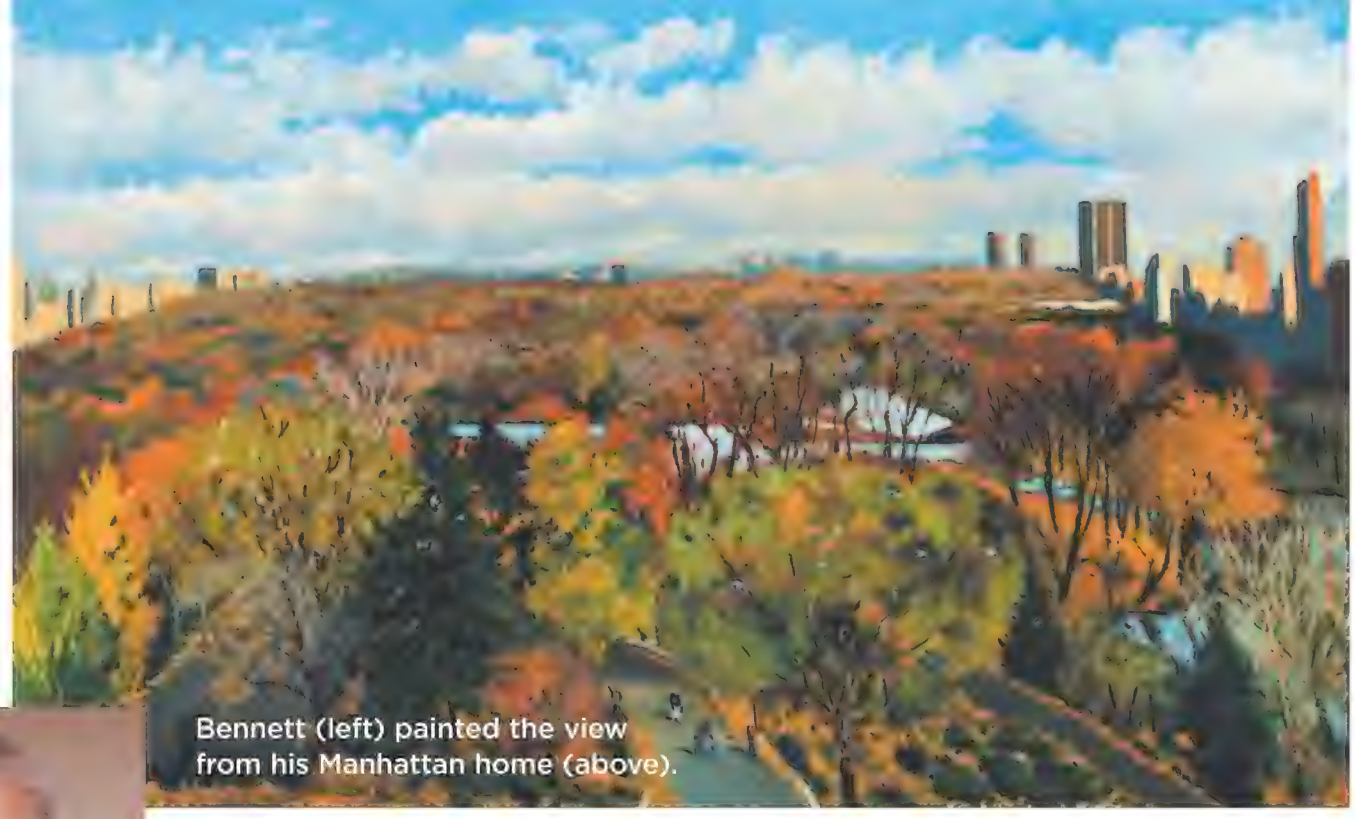
Tony Paints the Town

The 79-year-old pop star wins acclaim for his unsung artistry



Bennett (left) painted the view from his Manhattan home (above).

LEGENDARY CROONER Tony Bennett, who has collected 12 Grammys, has now been recognized by the Smithsonian—for painting. This past September, while visiting the Smithsonian American Art Museum to talk about a favorite cause—art education in public schools—Bennett offered one of his paintings to the museum, which gladly accepted it. His 1998 oil-on-canvas *Central Park*, which depicts the view from his 15th-floor Manhattan apartment, will be displayed under the name that the 79-year-old "Kid from Queens" was given at birth, Anthony Benedetto. "In the work, you have a feeling of lightness and joy," says Elizabeth Broun, the museum's director. We phoned Bennett at home to hear more about his artistic pursuits:

You studied music and painting at New York's High School of Industrial Arts. How did music win out as your career choice?
I had a music teacher, a Mr. Sondberg, and he liked the way I sang. He said, "You should think about singing."

When did you return to painting?
My whole life I've been painting every day. I've been blessed with the fact that as far back as I can remember, I've always had a passion to sing and paint. I do both, and I don't consider it work!

Is it something you do to relax?
It's so meditative, you could paint for four hours and it seems like four minutes—the concentration that takes over you. They say, "life is short, but art is long."

How does painting figure into your performance schedule?
I carry watercolors on the road, and my sketch pads. I do about five paintings a month. I go to some great city where there's always a wonderful museum.

Where do you get your ideas?
Mostly from life. It's what my eyes see, the way the light hits some piece of nature, or a building, or a person's face.

You've said Sinatra is your musical inspiration. Who inspires you artistically?
So many painters! Sargent—I'm overwhelmed by Sargent, how wonderful he paints. His sketches were a real performance. You look at one and think it was extra special somehow.

How does it make you feel to have your artwork at the Smithsonian?
It's a dream. I've had ambition when it came to singing, and I hoped someday I would sing at Carnegie Hall, but I never had that with the paintings. I can't get over going to the Smithsonian. To be in the same company as Sargent and Homer and Eakins—what a compliment!

You left your heart in San Francisco—now you've left your art in Washington. What's next?
Ha! I haven't found my heart yet! I just paint and I keep trying to learn more and more, and I love doing that.

—CHRISTINE DELL'AMORE

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THIS MONTH IN HISTORY

FEBRUARY ANNIVERSARIES—MOMENTOUS OR MERELY MEMORABLE

65 YEARS AGO: ACCIDENTAL DISCOVERY

While trying to create a refrigerant, chemist Roy Plunkett produces a fortuitous find later called Teflon, which he patents February 4, 1941. It is used to make valves employed in building the first atom bomb. In 1954, French engineer Marc Grégoire sprays his wife's pans with the slippery substance and creates his own marketable invention: nonstick cookware.

25 YEARS AGO: LOVE IS IN THE HEIR

One of the world's most eligible bachelors finally announces his choice of a bride on February 24, 1981. Under increasing pressure to marry, Prince Charles, the 32-year-old heir to the British throne, asks Lady Diana Spencer, a 19-year-old kindergarten teacher, to marry him. "Maybe it's too awful for you," he says in proposing, referring to life as a royal. "No. I haven't any doubts," she replies. They are wed on July 29, 1981, but the prince proves prophetic. The two divorce in August 1996. Diana dies in a car crash in Paris a year later.

575 YEARS AGO: TRIAL BY FIRE

Urged by a voice she believes to be God's, Joan of Arc leads the French Army against the invading English during the Hundred Years' War. On May 4, 1429, she inspires the French forces to an important victory at Orléans. A year later, she is captured and charged with 70 offenses, including immodestly wearing men's clothing. Her interrogation begins on February 21, 1431. Convicted of heresy, she is burned alive at the stake on May 30, 1431. The executioner calls having to carry out the fatal order his most fearful task ever, and claims he found Joan's heart intact among the ashes.

70 YEARS AGO: BEETLE MANIA

Enlisting the talents of designer Ferdinand Porsche, Adolf Hitler approves production of a small, inexpensive car. At the Berlin Auto Show on February 15, 1936, he proclaims that millions will soon drive Volkswagens, or people's cars. Sixteen million vehicles later, the last German-built Beetle will roll off the assembly line in 1978.

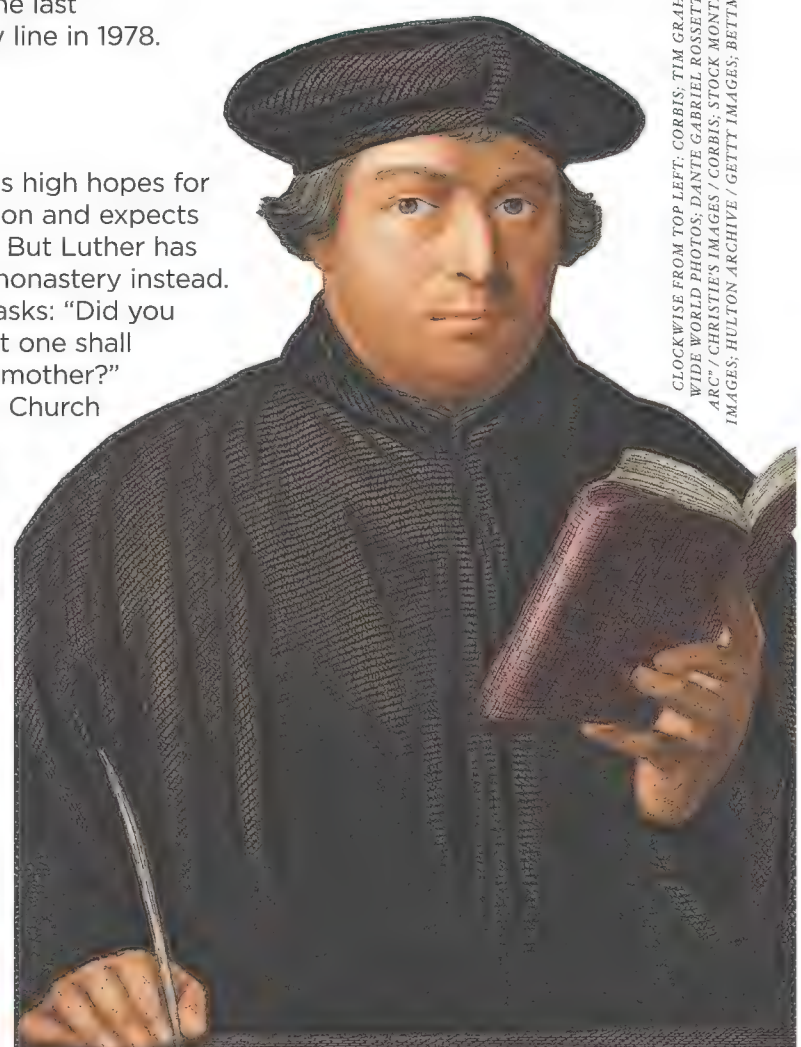
90 YEARS AGO: THE GUNS OF VERDUN

On February 21, 1916, one of the costliest and longest battles of World War I is joined. Determined to bleed the French army "white," German general Erich von Falkenhayn launches an attack on the French town of Verdun. A Gallic fortress before Roman times, the town proved critical in past wars with Prussia. Falkenhayn, aware of Verdun's history, expects an all-out stand by the French; he is not disappointed. In July, with carnage mounting, the Germans begin to withdraw. By battle's end in December, there are some 400,000 casualties on each side.

460 YEARS AGO: THE REFORMER

Martin Luther's father has high hopes for his academically gifted son and expects him to become a lawyer. But Luther has other plans and joins a monastery instead. His disappointed father asks: "Did you not read in Scripture that one shall honour one's father and mother?" Challenging the Catholic Church on a number of issues, Luther's treatises spread far and wide due to the recent invention of the printing press; his words and actions will forever change Christianity. The founder of the Reformation and Protestantism dies on February 18, 1546, at age 62.

—*CHAI WOODHAM*



CLOCKWISE FROM TOP LEFT: CORBIS; TIM GRAHAM / AP / WIDE WORLD PHOTOS; DANTE GABRIEL ROSSETTI, "JOAN OF ARC" / CHRISTIE'S IMAGES / CORBIS; STOCK MONTAGE / GETTY IMAGES; HULTON ARCHIVE / GETTY IMAGES; BETTMANN / CORBIS

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TO GAUGE THE HEALTH OF THE THREATENED MARINE ENVIRONMENT, SCIENTISTS ARE REVISITING SITES IN THE BAHAMAS (ABOVE, RESEARCHER KEN BANKS CHECKS CORAL) DOCUMENTED HALF A CENTURY AGO BY CHARLES C.G. CHAPLIN (OPPOSITE, WITH MOVIE CAMERA C. 1951). CO-AUTHOR OF A KEY BOOK ON AREA FISHES, CHAPLIN WAS OFTEN ASSISTED BY HIS YOUNG SON, GORDON (OPPOSITE, STANDING WITH A FRIEND, C. 1955).

Smithsonian
FEBRUARY 2006 VOLUME 36, NUMBER 11

A RETURN TO THE REEFS

With the world's coral reefs in crisis, the author's childhood memories guide a far-reaching study of the problem in the Bahamas

BY GORDON CHAPLIN
PHOTOGRAPHS BY BRIAN SKERRY

I couldn't have been more than 5 years old when my father fitted me with my first pair of swim goggles. I waded out from the beach until the silky cool water reached my chest, and then I bent my knees until my head was below the surface. As if I'd passed through the looking glass like Alice, I was suddenly inside our living room aquarium with its colony of bright, tiny sea creatures.

My smiling, similarly begoggled father was beckoning in dreamlike slow motion. Easing through the silvery ceiling of the sea, through clouds of minnows, over the dancing white sand bottom, I swam out with him until the world changed from bright sand to beige-colored rocks fringed with plants and set with purple and yellow sea fans.

My father dove eight feet to the bottom, where I could see a little cave underneath a ledge, and beckoned again. Diving down to him was as easy as flying. Under the roof of the cave a living jewel was hanging upside down, shading from deep purple at its head to brilliant yellow at its tail. It turned sideways with a wave of a magenta fin and cocked a midnight blue eye. There was a click inside my head. It was one of those moments when the world arranges itself: from now on the sea would be a top priority for me.

AS A BOY, THE AUTHOR WAS INSPIRED BY A FAIRY BASSLET (IN HIS FATHER'S *FISHES OF THE BAHAMAS*).

The fish was called a fairy basslet, my father told me when we came up for air. He would know. At the time, he was engaged in the most comprehensive study ever done of fishes of the Bahama Islands. Although he'd never been to college and had no formal scientific training, he co-authored the 771-page *Fishes of the Bahamas and Adjacent Tropical Waters*, first published in 1968, that documents 507 species and is still considered the classic reference.

In many ways, this book is my sibling. I spent my childhood with it in the Bahamas, watching it grow and take shape and sometimes helping it along. As a boy, I participated in many of the collecting expeditions (at least 1 or 2 of the 65 new species introduced in the book were netted by me). I know the spots where my father collected specimens as well as I know the rooms in the house where I grew up.

Both my father, Charles C.G. Chaplin, and his co-author, James Böhlke, are gone now. But a scientist at the Academy of Natural Sciences in Philadelphia, which supported their research, decided that the specimens, notes, photographs and films they accumulated over 15 years provide a unique opportunity to compare the marine environment in the Bahamas then and now. In 2004, Dominique Dagit (who has since moved from the Academy to Millersville University in Pennsylvania) began one of the first 50-year retrospective studies of coral reef life.

As the only surviving member of the original research team, I returned to the Bahamas to show Dagit and her colleagues the sites where my father had collected specimens and made observations. It was the first time I'd been back since our house was sold in the 1970s, and what I found was shocking.

THE WORLD'S CORAL REEFS are in trouble. According to the Global Coral Reef Monitoring Network (GCRMN), an international consortium of scientists and volunteers, only 30 percent of reefs are healthy now, down from 41 percent in 2000. United States government agencies, conservation organizations and other scientists echo the point. A few go so far as to say that coral reefs in some areas may be doomed. In the Caribbean, the area of seafloor covered by live hard coral has decreased by 80 percent in the past 30 years.

A coral reef is actually a colony of small polyps, related to jellyfish, that secrete a limestone exoskeleton and nourish themselves mainly through a symbiotic relationship with photosynthesizing algae. Modern coral reefs as we know them have been accumulating since the Holocene Epoch 10,000 years ago. They are the largest durable biological constructions on earth, and support more kinds of species than any other marine environment. They sustain many fishes that people rely on for food, and they protect coastlines and attract tourists. A 1997 study estimated that reefs contribute $375 billion a year to the world's economy.

The most serious threat to coral reefs—overshadowing

GORDON CHAPLIN, a writer based in New York City, works on marine and land conservation projects in Mexico's Sea of Cortés. Photojournalist BRIAN SKERRY specializes in underwater subjects.

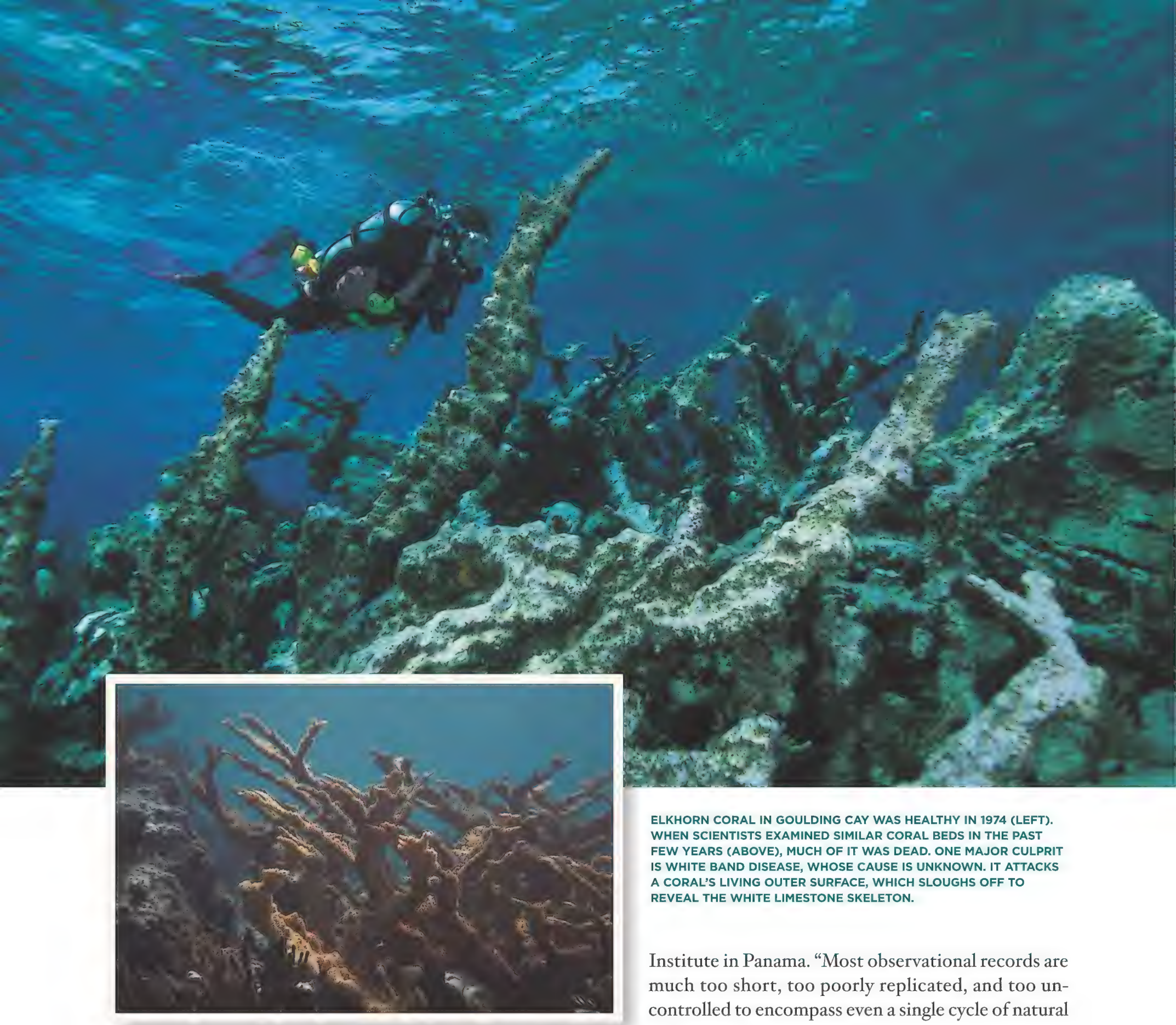
P.41 CHARLES CHAPLIN; LOUISE CHAPLIN

"BLACK SHEEP OF THE FAMILY," CHARLES C.G. CHAPLIN (LEFT, WITH DAUGHTER SUSAN, 4, AND SON GORDON, 8, IN 1953) MARRIED A PHILADELPHIA SOCIALITE AND EMBARKED ON RESEARCH IN THE BAHAMAS. THE CHAPLINS LIVED ON AN ISLAND NEAR NEW PROVIDENCE.

MAP: MIKE REAGAN; LOUISE CHAPLIN

natural cataclysms such as hurricanes, floods and tsunamis—is human activity. Overfishing, begun hundreds of years ago, has depleted the populations of many of the fishes that graze on algae and keep it from smothering the reefs. Runoff laden with sediment and pollutants further fuels the growth of algae and spreads harmful bacteria.

Even more threatening to coral reefs are greenhouse gases, notably carbon dioxide. Emitted into the atmosphere when fossil fuels are burned, carbon dioxide has become much more concentrated in seawater in the past 60 years, making the ocean more acidic and interfering with coral polyps' ability to generate their limestone skeleton. More significantly, ocean temperatures have risen in recent



ELKHORN CORAL IN GOULDING CAY WAS HEALTHY IN 1974 (LEFT). WHEN SCIENTISTS EXAMINED SIMILAR CORAL BEDS IN THE PAST FEW YEARS (ABOVE), MUCH OF IT WAS DEAD. ONE MAJOR CULPRIT IS WHITE BAND DISEASE, WHOSE CAUSE IS UNKNOWN. IT ATTACKS A CORAL'S LIVING OUTER SURFACE, WHICH SLOUGHS OFF TO REVEAL THE WHITE LIMESTONE SKELETON.

years, and coral is so sensitive to change that a prolonged warming of less than 2 degrees Fahrenheit above normal can cause bleaching. In this frequently fatal condition, coral polyps expel their symbiotic algae and turn snowy white. During the 1998 El Niño-induced warming, 16 percent of the world's reefs suffered bleaching, according to GCRMN; two-fifths of the damaged reefs have since recovered. Officials from the World Conservation Union warn that if global warming continues at the predicted rate, up to half of the world's coral reefs may die within the next 40 years.

Evaluating threats to the world's reefs is a matter of real urgency, yet it is no easy task. "Conventional ecological data are clearly inadequate," writes reef ecologist Jeremy Jackson of the Scripps Institution of Oceanography in La Jolla, California, and the Smithsonian Tropical Research Institute in Panama. "Most observational records are much too short, too poorly replicated, and too uncontrolled to encompass even a single cycle of natural environmental variation."

This is what makes my father's legacy important.

THE HOUSE IN WHICH I GREW UP is across the harbor from Nassau and reachable only by boat. Ronnie and Joan Carroll run it as a bed-and-breakfast, and the place is still called the Chaplin House. Ronnie, a former commercial diver whose family has been in the Bahamas since the 1600s, ferried me over one May morning. "Nassau's all shot to hell," he said cheerfully, "but we've done our best to keep the old place the way your father left it."

The house is on what used to be called Hog Island, where livestock was kept in the 18th century when Nassau was a pirate port. Now it's called Paradise Island, site of a huge casino and resort complex, Atlantis, which looms pinkly over the harbor.

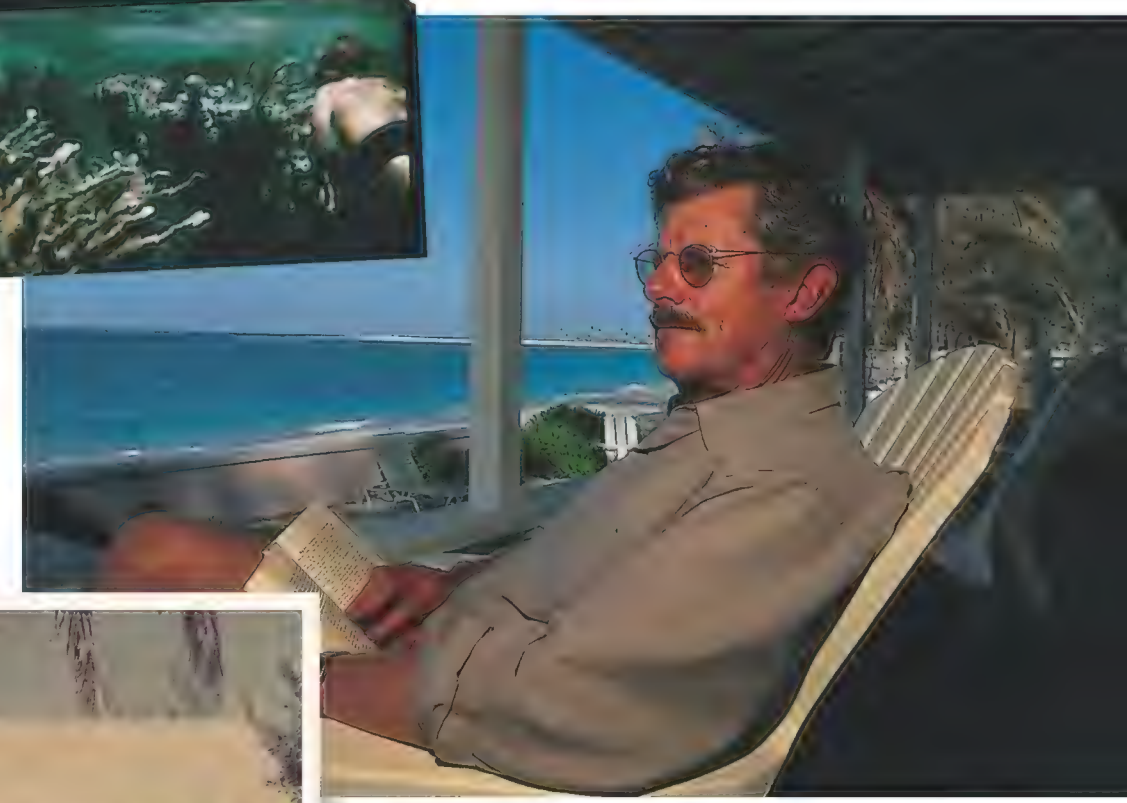
The harbor looked both more dilapidated and more glit-

BOTTOM: CHRIS PEDERSON

tery than I remembered. The wharves and sheds on the Nassau side were sagging and rusty, docked with tramp freighters from the Caribbean's more notorious fever ports. Trading sloops from Haiti, with sails of rags, drifted in on the east wind with, Ronnie speculates, cargoes of illegal immigrants and narcotics. But Prince George's Dock had been extended to accommodate 11 huge cruise ships at once.

The Chaplin House dock had a new gazebo, but otherwise looked exactly the same. Joan, a Swede and former model whom Ronnie met during a brief turn as a race car driver, walked out to greet us. "Welcome home," she said.

Every step up the long concrete walkway from the dock was a step into the fourth dimension. When the south veranda of the old wooden bungalow came into view, I could almost see my father in his favorite dark blue nylon swim trunks, his tanned back to us, washing snorkeling gear at the tap below the railing and carefully laying it out to dry. He died 13 years ago at age 84 after a ruptured aneurysm. I had brought his ashes with me.



"EVERY STEP UP THE LONG CONCRETE WALKWAY . . . WAS A STEP INTO THE FOURTH DIMENSION," SAYS AUTHOR GORDON CHAPLIN (BELOW, AT HIS CHILDHOOD HOME IN THE BAHAMAS). HE WAS PLEASANTLY SURPRISED THAT CHAPLIN HOUSE (BOTTOM, IN THE 1950S) IS LARGELY AS HE REMEMBERS IT. AS A BOY, GORDON APPEARED IN A 1951 FILM BY HIS FATHER, *SEA GARDENS OF THE BAHAMAS* (LEFT, THE 8-YEAR-OLD SPEARFISHES IN LYFORD CAY). AMONG OTHER RECORDS HIS FATHER LEFT BEHIND ARE 800 PAGES OF NOTES—AND MORE THAN 40,000 FISH SPECIMENS.

The octopuses had a way of crawling out of the aquarium in the early hours of the morning to die under furniture.

BORN IN INDIA, where his father was a British military officer, my father had been something of a black sheep. He failed to follow his brothers into university and the family regiment, instead sailing away from England at age 27 in an ancient ketch with vague plans of circumnavigating the world. He ran out of money in Barbados, crewed for my sailing uncle, who introduced him to my mother, and went ashore in Philadelphia, where she was a member in good standing of polite society.

My father's career as an ichthyologist stemmed from a single encounter in Barbados in 1934: a six-foot barracuda that slowly turned to face him until it was a circle bisected by lips and teeth. "A pike-like fish, once recognized never forgotten," as he put it in his *Fishwatchers Guide to West Atlantic Coral Reefs*, printed on waterproof paper with illustrations by British artist and conservationist Peter Scott and published in 1972. The barracuda is the wolf of the Bahamian reefs, the top of the food chain. As a child, I saw them all the time, and the powerful, undershot jaw and cold-eyed inquisitiveness never failed to remind me that I was vulnerable, out of my element, in a wilderness.

After World War II, my mother bought the house (originally the Agassiz House, after the Harvard naturalist Louis Agassiz's son, Alexander, also a naturalist, who lived there in the 1890s), and my father's interest began to gather steam. Once I had found my own totem—the fairy basslet—I was eager to participate in his studies. Along with my younger sister, Susan, we began collecting in tide pools, turning over rocks and scooping up with dip nets the little fish, morays, octopuses, brittle stars, sea urchins, anemones, sea slugs and other creatures that lived underneath. We set fish traps in the harbor and seined in the shallow waters of nearby mangrove creeks. We created more little worlds for the captured creatures in our living room aquarium and studied their behavior. The octopuses had a way of crawling out of it in the early hours of the morning to die under furniture.

All of this might have remained a mere hobby, but my father had a nose for new developments. Scuba gear, which

FILM BY C. CHAPLIN, 1951; BOTTOM: CHARLES CHAPLIN

Jacques Cousteau had invented during the war, enabled him to work at depths that few could reach before. And he was quick to make scientific use of an organic fish poison called rotenone, prepared from the roots of certain tropical legumes and traditionally used by the Indians of the Amazon basin to harvest fish for food. We used a water-soluble rotenone powder, which we carried in sacks and dispersed at different depths on a reef. In half an hour or so, small fish within the localized cloud would begin to surface or sink to the bottom, making it possible to describe more accurately than ever the types and numbers of fish in a given area.

A childhood friend of my mother's, H. Radclyffe Roberts, was the Academy's director at the time and participated in some of those early rotenone collections. He was amazed. "From the beginning, there was great difficulty in identifying all but the most common species, and soon species were found that were very rare or previously quite unknown," Roberts wrote in his foreword to *Fishes of the Bahamas*. Research for the book got under way in earnest after Roberts arranged for the Academy to hire Böhlke, an ichthyologist who had just graduated from Stanford, to work with my father. My father was 48, Böhlke was 24, and I was 9, but I was never made to feel like a junior partner. In fact, my eyes were sharper than theirs, and I was able to recognize an unknown fish more quickly.

THE DAY AFTER I returned to Chaplin House, three scientists showed up: Dagit, now 40, an authority on a rare deep water shark relative called the ratfish; Heidi Hertler, 39, who specializes in the impact of land use on marine environments; and Danielle Kreeger, 43, who researches aquatic ecosystems. They brought photocopies of my father's field notes. The plan was for me to try to take them back to some of our old collecting sites, and to see how the reefs had changed—and why—since I saw them 50 years earlier.

I'd never read these notes before—all in his small, neat handwriting, complete with drawings and little maps. The style was scientific, but sometimes I heard his voice:

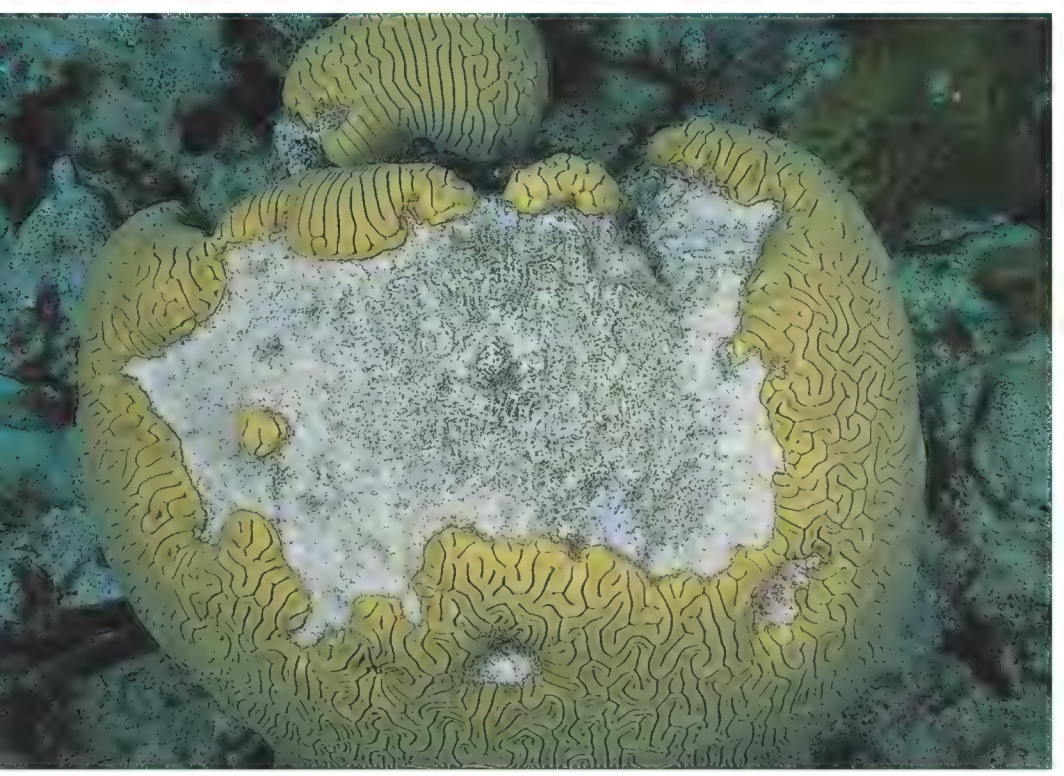
In the stomach of the wahoo, which was otherwise empty, were two revolting living parasites. About 1 inch long, the same colour and general appearance as a newly hatched sparrow. They had long prehensile necks which could be extended another inch and which constantly weaved about in a blind but sinister manner. At the end of this neck was a mouthlike orifice. Underneath the neck on the main body was another orifice of unknown function. I placed them in a beaker of salt water where they seemed fairly happy, exuding drops of what looked like digested blood. These creatures remained alive in salt water until Feb. 21, when I placed them in alcohol.

Who would compare a revolting parasite to a newly hatched sparrow? Or take such apparent pleasure in the blind, sinister manner of their neck-weaving? Or note that they seemed "fairly happy" exuding those drops of digested blood? Only a self-taught Englishman with a quirky sense of humor who loved to read his young son ghost stories. Burying myself in his notebooks, I came to fully appreciate the range and depth of my father's obsession for the first time.

I WAS HOLDING MY BREATH in more ways than one as the scientists and I prepared to enter the water off Lyford Cay near the western tip of New Providence Island. In the 1950s, this shallow reef was composed mainly of spectacular stands of elkhorn and staghorn coral. Great spreading branches reached 20 feet from the sandy bottom to the surface. Their color was a light, glowing terra cotta, the texture deeply serrated with the chambers of the polyps that had made them. Huge schools of bluestriped grunts hung in the branches.

"Gin clear" was how the guidebooks once referred to the water, and perhaps it is even brighter in my memory.

EXPERTS FEAR THAT IF SEA LEVELS RISE DUE TO GLOBAL WARMING AND COASTAL WATERS GROW MURKIER, CORALS (BRAIN CORAL IN THE BAHAMAS, ITS YELLOWISH LIVING TISSUE SURROUNDING A DEAD CORE PERHAPS DECADES OLD) WON'T RECEIVE THE SUNLIGHT THEY NEED.

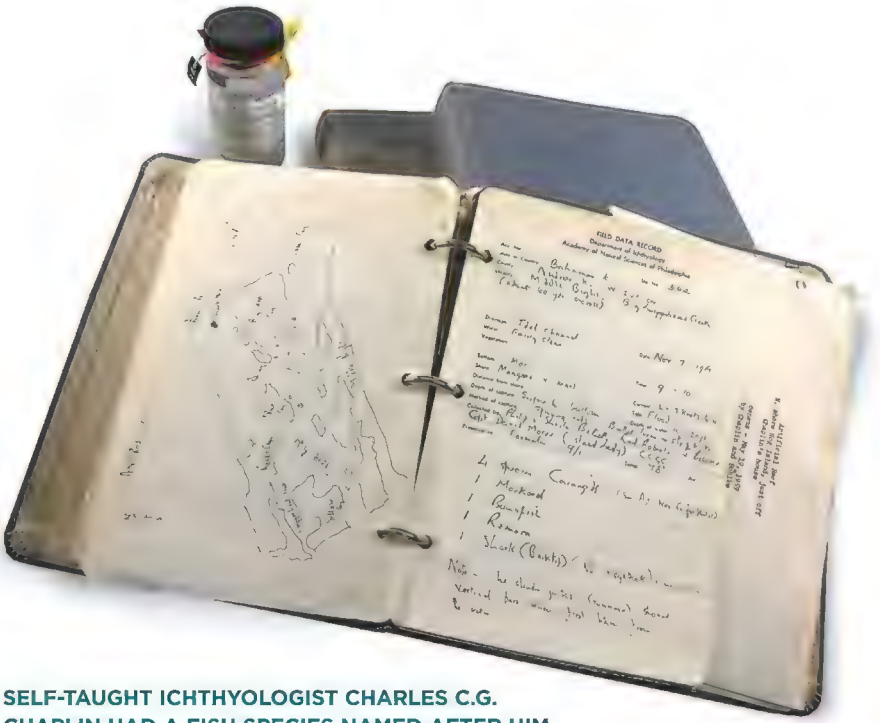


"Gin clear" was how the guidebooks referred to the water, and perhaps it is even brighter in my memory. Visibility back then could be well more than 100 feet, and the element magnified and intensified rather than obscured. The reef fish seemed lighted from inside—stylish dark gray French angelfish with their downturned white mouths, yellow-ringed eyes and gold-tipped body scales; gaudily impudent young turquoise-spotted yellowtail damselfish; lazily graceful slippery dick wrasse; pony-like, dainty tangs; blue clouds of chromis. The fish, anemones, purple gorgonians, soft corals, tube sponges and sea fans all moved to a light, watery rhythm, the symphony of the reef. That was what I remembered best, the feeling of being a symphonic part of things in a way I never felt on land. "Why did man ever come out of the sea?"

my father used to wonder. We'd take a few deep breaths on the surface, jackknife, and fly down into the *real* world.

The scientists were still fiddling with their scuba equipment, cameras, clipboards and measuring gear as I went overboard in a cloud of bubbles. When I got my bearings and could look around, it took a few moments to understand exactly what I was seeing. Finally it came to me: the light had gone out.

It was a sunny day, and plenty of light shone through the surface onto the reef. But dark green-brown algae covered the broken branches of elkhorn coral, and they no longer glowed with that magnified, intensified fluorescence. Under the algae, the coral had died.



SELF-TAUGHT ICHTHYOLOGIST CHARLES C.G. CHAPLIN HAD A FISH SPECIES NAMED AFTER HIM, *ACANTHEMBLEMARIA CHAPLINI* (A PRESERVED SPECIMEN AND CHAPLIN'S FIELD NOTES).

THE OLD FAMILIAR collection sites were as easy to find as my childhood bedroom. Sometimes, piloting our rented motorboat, I could pick out the exact same coral head. And more often than not, it would be mostly dead.

We counted fish, surveyed the bottom and took water samples. At two of my father's old sites, the fish population had inexplicably grown; we discovered later that a local dive shop fed them to please the tourists.

In ten days of diving up and down the north coast of New Providence Island, we never saw a single barracuda.

At the 15 or so other sites, the story was pretty much the same. Predatory fish such as grunts, snappers and groupers appeared seriously reduced (we'll do a more exact count in the future with rotenone), while algae-eating, coral-grazing fish such as parrots, tangs and wrasses seemed unaffected, or in some cases, had increased. The larger snappers and groupers had disappeared completely, and crawfish were scarce. We counted almost none of the rarer species such as mackerel, eagle rays, drums, filefish, toadfish, soapfish or cherubfish.

Almost every time my father and I entered the water in the 1950s, a barracuda would be there. It seemed to understand when you were scared, and it would follow you until you got out of the water, sometimes gaping its mouth, showing its teeth and shearing through the water in a blood-chilling way. But in ten days of diving and snorkeling up and down the north coast of New Providence Island, we never saw a single one. As a child I had nightmares about barracudas, but I missed them now. Their absence underlined like nothing else the fact that my father was no longer here, that everything was different. "It is the part of wisdom never to revisit a wilderness," conservationist Aldo Leopold wrote.

Danielle Kreeger's water samples provided the expedition's most intriguing data. She found that large microscopic particles of suspended matter were much more prevalent "downstream," or to the leeward end of the island of New Providence, than in other locations. An abundance of such particles can disrupt the ecological balance and indicate that algal blooms and pollution have passed the point where they can be grazed down by the filter-feeding community—corals, sponges and bivalves—leading to cloudier water.

Other researchers have also found poor water quality to be an important factor in Bahamian reef destruction. The city of Nassau pumps treated sewage more than 600 feet down into "deep injection disposal wells" in the limestone base of the island, but maintenance of the wells is sporadic, and they can develop leaks along the injection tubes.

Gordon England, a senior engineer in the Bahamian Ministry of Works and Utilities, says much of the island's sewage goes directly into poorly constructed septic tanks that can overflow in floods. Today, demand far outstrips capacity; the local population has more than tripled since the 1950s, and tourism has grown from 244,000 visitors a year to some 4 million. Still, England says that the large particle pollutants we found at New Providence's west end more likely come from the heavy industry and ship traffic there.

Compared with many other countries in the Caribbean, the Bahamas has generally been forward-looking in marine conservation. The government established the Caribbean's first marine fishery reserve in 1958, restricts commercial fishing to Bahamians, and sets fishing seasons for most stocks, such as the Nassau grouper. Seven Marine Protected Areas have been designated, with more proposed, and various governmental and private commissions produce a stream of policy recommendations, studies and education programs. The main problem is insufficient enforcement. Studies in the

MARK SABAJ / ACADEMY OF NATURAL SCIENCES, PHILADELPHIA

Exuma Cays Land and Sea Park, located 35 miles southeast of Nassau, show a direct relationship between the number and size of Nassau grouper and their proximity to the patrol station, guarded by a single ranger.

LAST YEAR, Heidi Hertler and I made a second expedition to my father's old haunts, this time with Loren Kellogg, 41, of the Academy's ichthyology department, who is completing his doctoral thesis on groupers, and Ken Banks, 52, a coral expert with Broward County, Florida's Environmental Protection Department. Banks' observations backed up Kreeger's data from the first trip: coral on the leeward side of the island was in especially bad shape, with only 7 percent of the bottom covered with live coral polyps, compared with a healthy 20 percent in an upstream location.

The closer the coral was to the island of New Providence, Banks found, the worse its condition. The worst of all was in shallow water off Clifton Point, not far from Lyford Cay, where there was a brewery, an oil-burning power plant, a pipeline to a second power plant and a deep water docking facility for ships carrying oil or other cargo. In the Lyford Cay area itself, there is much residential development.

One way to evaluate coral cover is by comparing video images taken at different times. It so happens that a Bahamian named Stuart Cove, who owns a dive shop, made a video survey of one area in early 1998. It showed the coral to be in excellent condition, whereas our own survey on this reef showed that most of the coral tissue that was alive then had died.

developed and industrial areas that produce pollution.

My father's aim was to discover and describe rare new species. Ours is to find out if they are still around and what might be done to save them.

THE FIRST THING I did after getting settled at the Chaplin House was to put on my snorkeling gear and swim out to the little ledge I'd dived on with my father so long ago. A small fish like the fairy basslet could live perhaps as long as 18 years. Would a great-grandchild of the original one still be in residence?

No barracudas to watch out for, but plenty of jet skis. The ledge was right where I thought it would be, about 50 feet from the house and 8 feet down. Here's a census for the ten-foot radius around it: 3 male bluehead wrasse, 1 juvenile dusky damselfish, 4 blue runner, 1 squirrelfish, 1 juvenile Spanish hogfish, 1 creole wrasse, 1 green razorfish, 1 blackbar soldierfish, 4 juvenile queen conch, 2 long-spined sea urchins.

There was no fairy basslet. And I remember there used to be many other creatures around that ledge: cuttlefish, moray eels, octopuses, soapfish and triggerfish. At least the long-spined sea urchins I saw were a good sign. They are algae eaters and crucial to reef ecology. A mass die-off of urchins in the 1980s from a disease that spread out of the Panama Canal had been a step toward disaster. With the population of grazing fish reduced by years of overfishing, the urchin die-off left algae free to flourish.

My father's favorite collecting station in the Bahamas was

My father's aim was to discover and describe new species. Ours is to find out what might be done to save them.

The coral in Cove's video survey was mainly boulder star, a dome-shaped reef-building coral. It had apparently been bleached following 1998's El Niño current, and it may have then been killed by algae blooms and pollution. Cove had no video survey of the elkhorn coral off Lyford Cay, now all dead except for small pockets of new growth that Banks said were "insignificant," but he said that disease had struck heavily there too after the 1998 bleaching.

"Another dead reef," Banks kept saying as we boated around the island. Diseased elkhorn coral is partly snowy white, then gradually turns greenish brown as algae grows over it. Brain coral with black-band disease looks like a balding head. Lacy, delicate staghorn coral is the most susceptible to diseases, and we found no living staghorn at all—only the masses of broken staghorn off Clifton Pier where big ships had dragged their anchors. When I was a boy it was everywhere.

We have some way to go before this study is complete, but we've determined that destruction to the reef life my father studied is widespread, that a good deal of it occurred after an El Niño year, and that the damage is worst close to a spectacular coral head towering from a white sand bottom 50 feet down to within 10 feet of the surface. The head is located about five miles from the Chaplin House, on the ocean side of a little uninhabited cay east of Nassau.

On the sand flats near the head, Jim Böhlke found and was the first to describe a new species of eel, *Nystactichthys halis*, which he informally called the garden eel because a colony of them looked like a living garden, appearing to grow from the sand like plants and swaying gently in the current. To me, the name was appropriate to the whole place: a garden under the sea.

After the Academy scientists had departed, I took my father's ashes out to that coral head and let them form a cloud in midwater. I watched them slowly descend through the blue space around the spire. Then I dove down through the cloud and touched the coral that was still alive. My father always believed in the supreme power of nature to maintain things as they should be. He probably would have attributed the decline of the reefs to a cycle that will eventually reverse itself. But his legacy might well teach us a more somber lesson.

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LOIS BARDEN was rummaging through a toolshed near Rochester, New York, when her eyes fell on a grime-coated crate half hidden in a dark corner. Glancing into it, Barden saw dozens of discarded windowpanes. Or were they? She held one up to the light, squinted at a filthy smudge—and was astonished to see ghostly faces staring back at her. She looked more closely. There were men, women, children and horses in a woodland setting. They were all locked in a shadowy wash of silver nitrate, for what Barden discovered was a trove of old 8x10-inch glass-plate photograph negatives.

That was 1972. Barden, who works as a 911 emergency dispatcher in nearby Ithaca, put the 98 glass plates in her attic. Over the years, she pondered the backwoods photographer, wondering who he was and how his work ended up in a toolshed that had belonged to her husband's grandmother, Isabel Mayo. In March 2004, Barden, aware of our research on historical photographs, contacted us to help solve the mystery.

When we saw the images, we were stunned by the artful museum-quality work.

Words and dates scratched onto the plates provided the first clues to where and when the photographs were taken: logging camps near Galeton and Port Allegany, in north-central Pennsylvania, in 1897 and 1898. We made prints from the nega-

THE AUTHORS CONCLUDE THE ANONYMOUS PHOTOGRAPHER WAS WILLIAM T. CLARKE, WHO HAD AN EYE FOR THE LOGGING INDUSTRY'S AWESOME SCALE (LEFT, ONE OF THE FOUND PICTURES) AND RESEMBLED GEN. JOHN PERSHING (THE APPARENT SELF-PORTRAIT, BELOW, WAS ALSO IN THE CACHE).

ACHIEVING AN UNLIKELY, IF ROUGH-HEWN, ELEGANCE, A LOGGER AND HIS FAMILY TAME THEIR SURROUNDINGS WITH A CARPET, SUNDAY FINERY AND VASE. PHOTOGRAPHER CLARKE MADE HIS LIVING BY SELLING HIS PORTRAITS, OFTEN COAXING HIS SUBJECTS INTO FANCY DRESS IN HIS OPEN-AIR "STUDIO."

tives and showed them to Linda A. Ries, of the Pennsylvania State Archives. She recalled similar pictures in the archives, from 1910 to 1915, thought to be the only surviving work by a photographer who traveled the lumber country for years. But most of his works—perhaps thousands of glass plate negatives—were known to have been destroyed in a leaky barn. Ries, delighted that a cache of early pictures might have escaped destruction, identified him as William Townsend Clarke.

So we began combing other archives and local historical societies to learn about Clarke. We found out a good deal from the writings of Henry Wharton Shoemaker, a colorful folklorist who knew Clarke personally. Clarke was born in New York in 1859 of Irish lineage. As a young man, Shoemaker wrote, Clarke abandoned plans to attend Yale College; chronically ill, he took a doctor's advice to get "rest and outdoor life for a couple of years" and moved to the virgin "Black Forest" of north-central Pennsylvania. Reportedly an enthusiastic photographer since his early youth, Clarke began documenting life in logging communities. He stayed in Betula and Conrad, in north-central Pennsylvania, where he returned periodically to develop negatives and print photographs. He sold "sets of views" to the people he had photographed and earned money from the logging firms that hired him to record their operations. For more than three decades, he wandered like a "Pennsylvania lion or panther, with the manner of an alchemist and voyageur," Shoemaker wrote, looking "into every nook and unfrequented place, ferreting out queer types of people to take their pictures."

He photographed rough-and-ready loggers (who called themselves "wood hicks") and bark strippers ("bark savages"). He also documented their families, tools, animals,

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RONALD E. OSTMAN teaches communication at Cornell University. HARRY LITTELL, a photographer, teaches at Tompkins Cortland Community College in Dryden, New York. They are co-authors of Margaret Bourke-White: The Early Work, 1922-1930.

ALL: LOIS BARDEN COLLECTION

CLARKE WAS AN "ADMIRER OF BEAUTY," SAID THE FOLKLORIST HENRY SHOEMAKER, AND HE "SINGLED OUT MANY LOVELY MOUNTAIN GIRLS WITH HIS LENS." THIS HAUNTING IDYLLIC INTERPRETATION OF TWO GIRLS, PRESUMABLY SISTERS, IS MARRED ONLY BY SOME DAMAGE TO THE GLASS PLATE NEGATIVE.

living and eating quarters and entertainments. And then, after a ravenous lumber industry had devoured the forests, Clarke captured the devastated, barren countryside that came to be known as the Pennsylvania desert.

Around 1915, Clarke was in Rochester, possibly working for the Eastman Kodak Company. The city was home to Clarke's sister, brother, two nephews and two nieces, including Isabel Mayo. Clarke, who never married, died in Rochester at age 71 in July 1930. We don't know why he selected those 98 plates to take north with him; perhaps they were his favorites. We can only marvel that Mayo kept them and that Barden, her granddaughter-in-law, saved them from oblivion.

A documentary photographer, however objective he may be, cannot help but leave traces of his personality in his work. In a typical Clarke photograph, we count a dog, four women, six children, ten horses and 24 men, all attentively regarding the man behind the camera. Thus we surmise that Clarke was exceptionally calm, patient and thorough. His images are generally somber. At the same time they bear occasional touches of whimsy: faces peek from bunkhouse windows; a boy scrambles onto a rooftop to strike a silly pose; a logger playing cards shows his hand to the camera; a dog sits on a chair. Clarke clearly prized order and clarity; he consistently captured many critical details in a single frame: loggers' faces, camp structures, a railroad and shorn hillsides. He communicated his awe at the scale of logging operations in long-range pictures of "rough-and-tumble" landings piled precariously high with enormous tree trunks, where lumbermen and horses appear dwarfed by the results of their labor.

Among the plates Barden found is one that we believe is a self-portrait; it shows a pensive, well-dressed man beside a stream, holding a branch and striking a self-conscious pose. The picture fits Shoemaker's description of Clarke as "a corncob pipe-smoking, tall, slight, affable mountaineer, possessing a magnificent soldierly figure and erect carriage, with aquiline features singularly reminiscent of General Pershing."

Clarke didn't sign his photographs and only occasional-

ly rubber-stamped his name on the back of a mounted print or stereograph card. He probably didn't think of himself as an artist, though, as Shoemaker noted, Clarke's pictures are "gems of art." If Clarke was aware that 250 miles away in New York City his contemporary Alfred Stieglitz was championing a movement that favored soft and fuzzy painterly effects, Clarke's sharp images don't show it. We suspect that Clarke's motivation was similar to that of the famous Northwest logging photographic team Darius and Tabitha Kinsey: not to create art, but to earn a living by documenting as clearly as possible the people and their work environments.

The evidence from Clarke's photographs and his few surviving words suggests a man profoundly ambivalent about his subject. His portrayals of the camps convey reverence for the loggers' skills and hard work. "Everybody who works in the woods has a story about him of some kind, all worth recording," he once said. "The average lumberman is an original." But he also depicts a bleak, if epic, transformation of the countryside. There is a bitter sadness to what he has seen. In a letter written in the early 1900s, Clarke laments: "The hill forests are about gone and this is the last of it . . . the fastest mill ever run in this country is now eating up the trees at a rate of 275,000 to 300,000 [board feet] per 24 hours. Why? When the hemlock can not last there more than 7 or 8 years at most. . . . "

Recently, we went to Pennsylvania and visited some of the places that Clarke photographed. We found a measure of hope; the once denuded hillsides, nurtured by state and federal authorities with an outlook toward sustainability, have regenerated into a luxuriant mix of timber. Little physical evidence remains of the lumber industry's "hateful blackened fire-swept wastes," as Shoemaker called them. Indeed, only through Clarke's eyes do we gain access to that era.

"I will never forget my days in the lumber camps of the Black Forest," Clarke recalled to Shoemaker in 1923, "especially the long summer evening, when I sat by my cabin door, listening to some husky lad at the camp across the creek, playing 'The Little Log Cabin in the Lane' on his melodeon, and watching the girls walk up and down the boardwalk arm in arm. These mental pictures will never grow less, no matter how often the fires sweep over the slashings."

A LACKAWANNA LUMBER COMPANY LOCOMOTIVE HAULS LOGS LOADED BY "WOOD HICKS" WIELDING PEAVEY POLES. "THE AVERAGE LUMBERMAN IS AN ORIGINAL," CLARKE ONCE NOTED.

A new exhibition brings the doomed residents of Pompeii and Herculaneum vividly to life

BY DOUG STEWART

Resurrecting Pompeii

IN A.D. 79, THE ROMAN CITY OF POMPEII WAS A THRIVING MARKET TOWN AND RESORT, WITH SOME 10,000 TO 20,000 INHABITANTS. THE STREETS WERE PAVED IN STONE AND BORDERED BY RAISED FOOTPATHS. SHOPS, CAFÉS AND TAVERNS ABOUNDED. WHEN MOUNT VESUVIUS ERUPTED IN AUGUST OF THAT YEAR, THE CITY WAS BURIED UNDER TEN FEET OF ASH AND PUMICE, WHICH HID AND PRESERVED THE RUINS FOR NEARLY 1,700 YEARS. A PLASTER CAST OF THE BODY OF ONE OF THE VICTIMS (LEFT) EVOKES THE SOCIETY'S DRAMATIC END.

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DAYBREAK, AUGUST 25, A.D. 79. Under a lurid and sulfurous sky, a family of four struggles down an alley filled with pumice stones, desperately trying to escape the beleaguered city of Pompeii. Leading the way is a middle-aged man carrying gold jewelry, a sack of coins and the keys to his house. Racing to keep up are his two small daughters, the younger one with her hair in a braid. Close behind is their mother, scrambling frantically through the rubble with her skirts hiked up. She clutches an amber statuette of a curly-haired boy, perhaps Cupid, and the family silver, including a medallion of Fortune, goddess of luck.

But neither amulets nor deities can protect them. Like thousands of others this morning, the four are overtaken and killed by an incandescent cloud of scorching gases and ash from Mount Vesuvius. In the instant before he dies, the man strains to lift himself from

THE RUINS OF THE ANCIENT, ONCE-PROSPEROUS CITY OF POMPEII EXTEND OVER SOME 250 ACRES IN THE SHADOW OF MOUNT VESUVIUS. ORGANIZED ARCHAEOLOGICAL EXCAVATIONS BEGAN THERE IN 1748, BUT THE IDENTITY OF THE SITE WASN'T CONFIRMED UNTIL 1763. GLADIATORS ONCE BATTLED TO THE DEATH IN THE CITY'S LARGE THEATER (CENTER FOREGROUND). THE SMALLER ODEON THEATER IS VISIBLE AT LOWER RIGHT.

the ground with one elbow. With his free hand, he pulls a corner of his cloak over his face, as though the thin cloth will save him.

The hellish demise of this vibrant Roman city is detailed in a new exhibition, "Pompeii: Stories from an Eruption," at Chicago's Field Museum through March 26. Organized by the office of Pompeii's archaeological superintendent, the exhibition includes nearly 500 objects (sculpture, jewelry, frescoes, household objects and plaster casts of the dead), many of which have never been seen outside Italy.

The destruction of Pompeii and the nearby coastal town of Herculaneum is undoubtedly history's most storied natural disaster. The ancient Roman cities were buried under layers of volcanic rock and ash—frozen in time—until their rediscovery and exploration in the 18th century. Early excavators didn't much care where a particular statue or mosaic fragment had been found and what stories might be coaxed from them. By contrast, "Pompeii: Stories from an Eruption" employs archaeological techniques to link artifacts to the lives of the people who once lived with them.

To most people today, the scope of the calamity in A.D. 79—natural forces transforming bustling areas overnight into cities of the dead—has long seemed unimaginable (if less so in the wake of Hurricane Katrina and Southeast Asia's 2004 tsunami). Moreover, the passage of time has softened the horror of Vesuvius' human toll. "Many disasters have befallen the world, but few have brought posterity so much joy," wrote the German poet Goethe after touring Pompeii's ruins in the 1780s, some 40 years after its rediscovery. Indeed, Pompeii's very destruction is what has kept it so remarkably alive. "If an ancient city survives to become a modern city, like Naples, its readability in archaeological terms is enormously reduced," says Andrew Wallace-Hadrill, director of the British School at Rome. "It's a paradox of archaeology: you read the past best in its moments of trauma."

In the Field Museum exhibition, some of those moments are brought eerily to life by plaster casts of Pompeii and Herculaneum's residents at the moment the eruption overtook them. The doomed couple fleeing down an alley with their two daughters (if they were indeed a family; some have suggested the man was a slave) were the first Vesuvius victims to be so revealed, although these early casts are not in the exhibition. In 1863, an ingenious Italian archaeologist named Giuseppe Fiorelli noticed four cavities in the hardened layer of once-powdery ash that covered Pompeii to a depth of ten feet. By filling the holes with plaster, he created disturbingly lifelike casts of this long-departed Pompeiian family in its final horrifying moments. It was as though an eyewitness from antiquity had stepped forward with photographs of the disaster.

Pompeii in A.D. 79 was a thriving provincial center with a population of between 10,000 and 20,000 people a few miles from the Bay of Naples. Its narrow streets, made narrower by street vendors and shops with jutting cloth awnings, teemed with tavern goers, slaves, vacationers from the north and more than a few prostitutes. A colossal new aqueduct supplied running water from the Lower Apennine mountains, which gushed from fountains throughout the city, even in private homes. But the key to Pompeii's prosperity, and that of smaller settlements nearby like Oplontis and Terzigna, was the region's rich black earth.

"One of the ironies of volcanoes is that they tend to produce very fertile soils, and that tends to lure people to live around them," says Field Museum geologist Philip Janney. Olive groves supported many a wealthy farmer in Pompeii's suburbs, as suggested by an exquisite silver goblet (p. 65) decorated with olives in high relief. Pompeiian wine was shipped throughout Italy. (The Roman statesman and writer Pliny

WHEN VESUVIUS ERUPTED ON AUGUST 24 AND 25, A.D. 79 (ABOVE, DETAIL OF AN 1813 PAINTING DEPICTING THE EVENT AND THE DEATH OF PLINY THE ELDER), SOME 2,600 INHABITANTS PERISHED IN POMPEII ALONE (LEFT, A PLASTER CAST OF A CHILD FOUND UNDER A STAIRCASE).

PIERRE-HENRI VALENCIENNES, "VESUVIUS ERUPTING WITH THE DEATH OF PLINY" (DETAIL) / MUSEE DES AUGUSTINS / AKG IMAGES; MINISTERO PER I BENI E LE ATTIVITÀ CULTURALI - SOPRINTENDENZA ARCHEOLOGICA DI POMPEI / FEILD MUSEUM, CHICAGO; P. 60 ROGER RESSMEYER / CORBIS; PP. 60,61 ERICH LESSING / ART RESOURCE; P. 62 O. LOUIS MAZZATENTA / NATIONAL GEOGRAPHIC IMAGE COLLECTION

the Elder complained it produced a nasty hangover.)

At the House of the Centenary, a lavish residence converted to a winery in the first century A.D., an impish bronze satyr, once part of a fountain, squeezes wine from a wineskin. Found on a wall in the same house, a large, loosely painted fresco depicts the wine god Bacchus festooned in grapes before what some scholars have identified as an innocent-looking Mount Vesuvius, its steep slopes covered with vineyards.

In the towns below it, most people would not have known that Vesuvius was a volcano or that a Bronze Age settlement in the area had been annihilated almost 2,000 years before. And that was not the first time. "Vesuvius is actually inside the exploded skeleton of an older volcano," says Janney. "If you look at an aerial photograph, you can see the remaining ridge of a much larger volcano on the north side." It likely blew, violently, long before human settlement.

Southern Italy is unstable ground, Janney says. "The African plate, on which most of the Mediterranean Sea rests, is actually diving beneath the European plate." That kind of underground collision produces molten rock, or magma, rich in volatile gases such as sulfur dioxide. Under pressure underground, the gases stay dissolved. But when the magma rises to the surface, the gases are released. "When those kinds of volcanoes erupt," he says, "they tend to erupt explosively." To this day, in fact, Vesuvius remains one of the world's most dangerous volcanoes; some 3.5 million Italians live in its shadow, and about 2 million tourists visit the ruins each year. Although monitoring devices are in place to warn of the volcano's restiveness, "if there is a major eruption with little warning and the winds are blowing toward Naples," says Janney, "you could have tremendous loss of life."

FRESCOED PORTRAITS OF RESIDENTS (ABOVE, A PAINTING THOUGHT TO BE OF TERENTIUS NEO AND HIS WIFE, FOUND NEXT DOOR TO A BAKERY) ADORNED THE WALLS OF MANY POMPEIIAN HOMES. BREAD WAS PRODUCED DAILY (81 CARBONIZED LOAVES WERE FOUND IN ONE BAKERY'S OVEN).

Had Roman knowledge in the summer of 79 been less mythological and more geological, Pompeiians might have recognized the danger signs. A major earthquake 17 years earlier had destroyed large swaths of the city; much of it was still being rebuilt. Early in August, a small earthquake had rocked the town. Wells had mysteriously gone dry. Finally, at about one in the afternoon on August 24, the mountain exploded.

Fifteen miles away, Pliny the Elder witnessed the eruption from a coastal promontory. (He would die during a rescue mission the next morning, perhaps choked by ash after landing on the beach near Pompeii.) Watching with him was his 17-year-old nephew, known as Pliny the Younger, who has given history its only eyewitness account. Above one of the mountains across the bay, he noticed "a cloud of unusual size and appearance." It reminded him of an umbrella pine tree "for it rose to a great height on a sort of trunk and then split off into branches." The cloud was actually a scorching column of gas mixed with thousands of tons of rock and ash that had just blasted out of the earth at supersonic speed.

The column's great heat continued to push it skyward until it reached a height of nearly 20 miles, says Janney. "As the column cooled, it began to spread out horizontally and drift with the wind, which is why [the younger] Pliny compared it to a pine tree. As it cooled further, solid particles started to rain down. That's what began to fall on Pompeii."

At first, the choking rain of ash and small pumice stones wasn't lethal. An estimated 80 percent of Pompeii's residents likely fled to the safety of neighboring villages, but more than 2,000 stayed behind, huddled inside buildings. By nightfall, the shower of debris had grown denser—and deadlier. Smoldering rocks bombarded the city. Roofs began to collapse. Panicked holdouts now emerged from their hiding places in cellars and upper floors and clogged Pompeii's narrow, rubble-filled streets.

Perhaps the most poignant object in the exhibition is the plaster cast of a young child stretched out on his back with his toes pointed and his eyes closed (p. 63). He might be sleeping, except his arms are lifted slightly. He was found with his parents and a younger sibling in the House of the Golden Bracelet, once a luxurious three-story home decorated with brightly colored frescoes. The family had sought refuge under a staircase, which then collapsed and killed them. The powdery ash that soon buried them was so finely textured that the cast reveals even the child's eyelids. Coins and jewelry lay on the floor of the house. Among the finery was a thick gold bracelet (opposite, top left) weighing 1.3 pounds (the source of the building's name) in the popular shape of a two-headed snake curled so that each mouth gripped one side of a portrait medallion. Pompeii's serpents were unsullied by biblical associations; in ancient Italy, snakes meant good luck.

Pompeii's patron deity was Venus, the Roman goddess of love and beauty. Small wonder that the city's ruins were filled with erotic art, perfume bottles and extravagant gold jewelry, including earrings set with pearls, gold balls and uncut emeralds bunched like grapes. "I see they do not stop at at-

Massachusetts-based freelance writer DOUG STEWART *is a frequent contributor. He wrote on West African gold in December.*

SCALA / ART RESOURCE; P. 65 MINISTERO PER I BENI E LE ATTIVITÀ CULTURALI-SOPRINTENDENZA ARCHEOLOGICA DI NAPOLI E CASERTA / FIELD MUSEUM, CHICAGO (3); MINISTERO PER I BENI E LE ATTIVITÀ CULTURALI-SOPRINTENDENZA ARCHEOLOGICA DI POMPEI / FIELD MUSEUM, CHICAGO

THIS GOLD BRACELET IN THE FORM OF A TWO-HEADED SNAKE, A GOOD-LUCK SYMBOL, WEIGHS 1.3 POUNDS.

OLIVES AND OLIVE BRANCHES ADORN THIS SILVER WINE GOBLET, OR *KANTHAROS*, FOUND INSIDE A HOME.

A BRONZE GLADIATOR HELMET WITH A VISOR AND SCULPTED RELIEF DATES TO THE FIRST CENTURY A.D.

THIS GOLD-AND-SILVER STATUETTE OF MERCURY WAS FOUND WITH A BODY NEAR THE CITY'S HARBOR GATE.

taching a single large pearl in each ear," the Roman philosopher Seneca observed during the first century A.D. "Female folly had not crushed men enough unless two or three entire patrimonies hung from their ears." The showiest pieces of jewelry in the exhibition are the catenae: gold chains up to six feet long that wrapped tightly around a woman's waist, then crossed her chest and shoulders bandoleer-style.

Like the family of four found in the alley with a Cupid statuette and a good-luck charm, Pompeii's victims often died carrying the objects they valued most. A woman fleeing through one of the city gates clutched a gold-and-silver statuette of fleet-footed Mercury, the god of safe passage. Across town at the city's colonnaded outdoor gymnasium, where close to 100 people perished, one victim was found holding a small wooden box against his chest. Inside were scalpels, tweezers and other surgical tools. A doctor, he may have grabbed his medical kit to help the injured, expecting the worst would soon be over.

In a small room at an inn on the southern outskirts of Pompeii, a woman of about 30 died wearing two heavy gold armbands, a ring and a gold chain. In a handbag were more bracelets and rings, another gold chain, a necklace and a long catena of thick, braided gold. Roman jewelry was rarely inscribed, but inside one of her armbands, shaped like a coiled snake, are the words: *DOM(I)NUS ANCILLAE SUAE*, "From the master to his slave-girl."

DISCOVERED WITH THE BODY OF A WOMAN FLEEING DOWN AN ALLEY IN POMPEII, THIS LONG NECKLACE, OR CATENA—WITH ITS 94 IVY LEAVES OF GOLD FOIL—IS ONE OF THE FINEST PIECES OF JEWELRY FOUND IN THE REGION. THE WOMAN ALSO CARRIED TWO UNCUT GEMS AND THE FAMILY SILVER.

"Since its excavation in the 18th century, Pompeii has acquired the reputation of being a permissive, sybaritic place," says University of Maryland classics professor Judith Hallett. "Throughout the ancient Greco-Roman world, slaves had to cater to the whims of the elite. I think all slaves, male and female, were on duty as potential sex partners for their male masters. If you were a slave, you could not say no."

Evidence of Pompeii's class system abounds. While many victims of the eruption died carrying hoards of coins and jewelry, many more died empty-handed. During the night of the 24th, the worsening rain of ash and stones blocked doors and windows on the ground floor and poured in through atrium skylights at the House of the Menander, one of the city's grandest homes. In the darkness, a group of ten people with a single lantern, likely slaves, frantically tried to climb from the pumice-filled entrance hall to the second floor. In a nearby hall facing a courtyard, three more struggled to dig an escape route with a pickax and a hoe. All died. Aside from their tools, they left behind only a coin or two, some bronze jewelry and a few glass beads.

In contrast, the master of the house, Quintus Poppeus, a wealthy in-law of Emperor Nero who wasn't home at the time, left behind plenty of loot. Hidden in an underground passage, archaeologists discovered two wooden treasure chests. In them were jewels, more than 50 pounds of carefully wrapped silverware, and gold and silver coins. His artwork, at least, Quintus left in plain sight. Under a colonnade was a marble statue of Apollo stroking a griffin as it playfully jumped up against his leg. The statue is in such superb condition that it might have been carved last week.

By encasing objects almost as tightly as an insect trapped in amber, the fine-grained volcanic ash that smothered Pompeii proved a remarkable preservative. Where the public market used to be, archaeologists have dug up glass jars with fruit still in them. An oven in an excavated bakery was found to contain 81 carbonized loaves of bread. A surprising amount of graffiti was also preserved. Blank, mostly windowless Pompeiian houses, for instance, presented seemingly irresistible canvases for passersby to share their thoughts. Some of the messages sound familiar, only the names have changed: *Auge Amat Allotenum* (Auge Loves Allotenus) *C Pumidius Dipilus Heic Fuit* (Gaius Pumidius Dipilus Was Here). A half-dozen walls around town offer comments on the relative merits of blondes and brunettes.

Several inscriptions salute local gladiators. The city's 22,000-seat amphitheater was one of the first built specifically for blood sport. Gladiators came mostly from the region's underclass—many were slaves, criminals or political prisoners—but charismatic victors could rise to celebrity status. Celadus the Thracian was "the ladies' choice," according to one inscription.

The exhibition includes a magnificent bronze helmet decorated with scenes of vanquished barbarians in high relief above the armored visor. (When losers were put to death, their bodies were carted off to a special room where they were relieved of their armor.) More than a dozen other such helmets have been unearthed in the gladiators' barracks, along with assorted weaponry. Also discovered there were the remains of a woman wearing lots of expensive jewelry, inspiring speculation that she was a wealthy matron secretly visiting her gladiator lover at the time of Vesuvius' eruption. More likely, considering the 18 other skeletons found in the same small room, she was simply seeking refuge from the deadly ash.

MINISTERO PER I BENI E LE ATTIVITÀ CULTURALI-SOPRINTENDENZA ARCHEOLOGICA DI NAPOLI E CASERTA / FIELD MUSEUM, CHICAGO; P. 67 MINISTERO PER I BENI E LE ATTIVITÀ CULTURALI-SOPRINTENDENZA ARCHEOLOGICA DI POMPEI / FIELD MUSEUM, CHICAGO

FOUND IN POMPEII C. 1978 IN THE HOUSE OF JULIUS POLYBIUS, THIS BRONZE STATUE REPRESENTS APOLLO, THE GREEK GOD OF THE ARTS. THE LIFELIKE EYES ARE OF STONE AND GLASS PASTE.

NINE MILES northwest of Pompeii, the seaside resort of Herculaneum experienced Vesuvius' fury in a different way. Here the enemy, when it came, was what geologists call a pyroclastic surge: superheated (1,000-degree Fahrenheit) ash and gas traveling with the force of a hurricane.

Herculaneum was smaller and wealthier than Pompeii. Roman senators built terraced homes here overlooking the Bay of Naples. The grounds of the sumptuous Villa of the Papyri, where Julius Caesar's father-in-law may once have lived, included a swimming pool more than 200 feet long. Inside the villa, named for its immense library of scrolls, were frescoes, mosaics and more than 90 statues. Exhibition highlights from the trove include two recently unearthed marble statues: a regal standing Hera, queen of the gods, and a finely chiseled head of an Amazon warrior (see cover) in the style of Greece's Classical period, both on display for the first time.

IN 1996, THE ARCHAEOLOGICAL SUPERINTENDENT OF POMPEII APPOINTED A RESPECTED ITALIAN WINEMAKING FAMILY TO REINTRODUCE VINE-GROWING TO THE SITE. THE FORO BORIA VINEYARD (ABOVE) NOW THRIVES BENEATH VESUVIUS IN AN AREA WHERE THE REMAINS OF VINE ROOTS WERE FOUND.

Shortly after noon on August 24, the sky over Herculaneum darkened ominously. The wind, however, pushed Vesuvius' ash well to the southeast. The vast majority of Herculaneum's roughly 5,000 inhabitants probably fled that same afternoon and evening; the remains of only a few dozen people have been found in the city itself. Not long after midnight, a glowing cloud of superheated gases, ash and debris roared down the mountain's western flank toward the sea. "Pyroclastic surges move quite rapidly, between 50 and 100 miles per hour," says geologist Janney. "You can't outrun them. You don't even get much warning." In Pompeii, the first to die had been crushed or buried alive. In Herculaneum, most of the victims were incinerated.

The younger Pliny witnessed the surge's arrival from across the bay. Even at the comparatively safe distance of 15 miles, it triggered panic and confusion. "A fearful black cloud was rent by forked and quivering bursts of flame, and parted to reveal great tongues of fire," he wrote. "You could hear the shrieks of women, the wailing of infants, and the shouting of men. . . . Many besought the aid of the gods, but still more imagined there were no gods left and that the universe was plunged into eternal darkness."

Large numbers of Herculaneum's residents fled toward the sea in hopes of escaping by boat. Along the seafront archaeologists in the 1980s discovered the remains of nearly 300 victims. Carrying satchels filled with cash, jewels and amulets, they crowded into boathouses on the beach. The sudden torrent of searing gas and ash must have caught them by surprise. The surge was so hot that a cache of bronze and silver coins in a wicker basket were fused into a solid block of metal. By the time it was over (there were 12 surges in all), the entire city was buried under 75 feet of rock and ash.

In Pompeii, the falling ash had let up by about 6 p.m. on the 24th. But as survivors ventured out into the streets on the morning of the 25th, a pyroclastic surge swept in, killing everyone in its path. Two more surges followed, but these covered over a silent, lifeless city.

After its rediscovery in the 18th century, Pompeii grew to a stature it never enjoyed in ancient times, as well-bred tourists, some with shovels in hand, took wistful strolls through its emerging ruins. "From the 1760s onward, the grand tour through Italy was considered by the aristocracy of Europe to be a necessary part of growing up," says archaeologist Andrew Wallace-Hadrill.

The more serious-minded visitors drew inspiration from the astonishing artwork coming to light. Published drawings of Pompeii's richly colored interiors helped trigger the neo-Classical revival in European art and architecture. Well-appointed British homes in the early 19th century often had an Etruscan Room, whose décor was actually Pompeiian.

The story of the pagan city annihilated overnight by fire and brimstone was also an irresistible subject for 19th-century paintings and novels, notably Sir Edward Bulwer-Lytton's 1834 potboiler, *The Last Days of Pompeii.* "Novels like that and *Quo Vadis* drew on the material evidence from Pompeii to play up the idea of Roman decadence," says classicist Judith Hallett. "It was presented as exactly what Christianity promised to rescue mankind from."

In the months after Vesuvius' eruption, "a lot of Pompeiians came back to dig through the ash and see what they could recover," says anthropologist Glenn Storey of the University of Iowa, a consultant to the exhibition. "The Emperor Titus declared Pompeii an emergency zone and offered financial assistance for cleanup and recovery." But the buried towns were beyond salvaging. "When this wasteland regains its green," wrote the Roman poet Statius not long after the eruption, "will men believe that cities and peoples lie beneath?" Eventually, the towns were dropped from local maps. Within a few centuries, settlers had repopulated the empty terrain, unconcerned with what lay below. They planted grapevines and olive trees in the fertile black soil.

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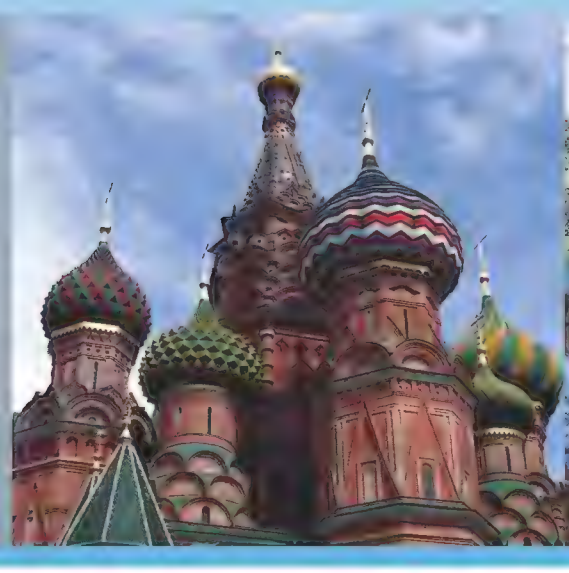

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In John They Tru

South Pacific villagers worship a mysterious American they call John Frum—believing he'll one day shower their remote island with riches

TEXT AND PHOTOGRAPHS BY PAUL RAFFAELE

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VILLAGERS ON THE ISLAND OF TANNA (ABOVE) DANCE IN JOHN FRUM'S HONOR EACH FEBRUARY 15. CLAN LEADERS FIRST SAW THEIR YANKEE MESSIAH IN THE LATE 1930S. HE LATER APPEARED TO THEM DURING WWII, DRESSED IN WHITE LIKE THE UNIDENTIFIED NAVY SEAMAN AT LEFT.

IN THE MORNING HEAT on a tropical island halfway across the world from the United States, several dark-skinned men—clad in what look to be U.S. Army uniforms—appear on a mound overlooking a bamboo-hut village. One reverently carries Old Glory, precisely folded to reveal only the stars. On the command of a bearded "drill sergeant," the flag is raised on a pole hacked from a tall tree trunk. As the huge banner billows in the wind, hundreds of watching villagers clap and cheer.

Chief Isaac Wan, a slight, bearded man in a blue suit and ceremonial sash, leads the uniformed men down to open ground in the middle of the village. Some 40 barefoot "G.I.'s" suddenly emerge from behind the huts to more cheering, marching in perfect step and ranks of two past Chief Isaac. They tote bamboo "rifles" on their shoulders, the scarlet tips sharpened to represent bloody bayonets, and sport the letters "USA," painted in red on their bare chests and backs.

This is February 15, John Frum Day, on the remote island of Tanna in the South Pacific nation of Vanuatu. On this holiest of days, devotees have descended on the village of Lamakara from all over the island to honor a ghostly American messiah, John Frum. "John promised he'll bring planeloads and shiploads of cargo to us from America if we pray to him," a village elder tells me as he salutes the Stars and Stripes. "Radios, TVs, trucks, boats, watches, iceboxes, medicine, Coca-Cola and many other wonderful things."

The island's John Frum movement is a classic example of what anthropologists have called a "cargo cult"—many of which sprang up in villages in the South Pacific during World War II, when hundreds of thousands of American troops poured into the islands from the skies and seas. As anthropologist Kirk Huffman, who spent 17 years in Vanuatu, explains: "You get cargo cults when the outside world, with all its material wealth, suddenly descends on remote, indigenous tribes." The locals don't know where the foreigners' endless supplies come from and so suspect they were summoned by magic, sent from the spirit world. To entice the Americans back after the war, islanders throughout the region constructed piers and carved airstrips from their fields. They prayed for ships and planes to once again come out of nowhere, bearing all kinds of treasures: jeeps and washing machines, radios and motorcycles, canned meat and candy.

But the venerated Americans never came back, except as a dribble of tourists and veterans eager to revisit the faraway islands where they went to war in their youth. And although almost all the cargo cults have disappeared over the decades, the John Frum movement has endured, based on the worship of an American god no sober man has ever seen.

Veteran writer and photographer PAUL RAFFAELE *has covered stories in Africa, Brazil and his native Australia for* SMITHSONIAN.

MANY AMERICANS know Vanuatu from the reality TV series "Survivor," though the episodes shot there hardly touched on the Melanesian island nation's spectacular natural wonders and fascinating, age-old cultures. Set between Fiji and New Guinea, Vanuatu is a Y-shaped scattering of more than 80 islands, several of which include active volcanoes. The islands were once home to fierce warriors, among them cannibals. Many inhabitants still revere village sorcerers, who use spirit-possessed stones in magic rituals that can lure a new lover, fatten a pig or kill an enemy.

Americans with longer memories remember Vanuatu as the New Hebrides—its name until its independence from joint British and French colonial rule in 1980. James Michener's book *Tales of the South Pacific*, which spawned the musical *South Pacific*, grew out of his experiences as an American sailor in the New Hebrides in World War II.

My own South Pacific experience, in search of John Frum and his devotees, begins when I board a small plane in Vanuatu's capital, Port-Vila. Forty minutes later, coral reefs, sandy beaches and green hills announce Tanna Island, about 20 miles long and 16 miles at its widest point, with a population of around 28,000. Climbing into an ancient jeep for the drive to Lamakara, which overlooks Sulphur Bay, I wait while Jessel Niavia, the driver, starts the vehicle by touching together two wires sticking out from a hole under the dashboard.

As the jeep rattles up a steep slope, the narrow trail slicing

P. 70 RALPH MORSE / TIME LIFE PICTURES / GETTY IMAGES

through the jungle's dense green weave of trees and bushes, Jessel tells me that he is the brother-in-law of one of the cult's most important leaders, Prophet Fred—who, he adds proudly, "raised his wife from the dead two weeks ago."

When we reach the crest of a hill, the land ahead falls away to reveal Yasur, Tanna's sacred volcano, a few miles to the south, its ash-coated slopes nudging the shoreline at Sulphur Bay. Dark smoke belches from its cone. "'Yasur' means

DEVOTEES RAISE OLD GLORY (INSET, LEFT) ON JOHN FRUM DAY. BAREFOOT "G.I.'S" (LEFT) TOTE BAMBOO "RIFLES" WITH SCARLET TIPPED "BAYONETS." THE FIRST WHITE MAN ON TANNA WAS PROBABLY CAPT. JAMES COOK (ABOVE), LURED BY THE ISLAND'S VOLCANO.

God in our language," Jessel murmurs. "It's the house of John Frum."

"If he's an American, why does he live in your volcano?" I wonder aloud.

"Ask Chief Isaac," he says. "He knows everything."

Dotting the dirt road are small villages where women with curly, bubble-shaped hair squat over bundles of mud-coated roots called kava, a species of pepper plant and a middling narcotic that is the South Pacific's traditional drug of choice. Connoisseurs say that Tanna's kava is the strongest of all. Jessel buys a bundle of roots for 500 vatu, about $5. "We'll drink it tonight," he says with a grin.

For as long as Tanna's inhabitants can remember, island men have downed kava at sunset each day in a place off-limits to women. Christian missionaries, mostly Presbyterians from Scotland, put a temporary stop to the practice in the early 20th century, also banning other traditional practices, or "kastom," that locals had followed faithfully for millennia: dancing, penis wrapping and polygamy. The missionaries also forbade working and amusement on Sundays, swearing and adultery. In the absence of a strong colonial administrative presence, they set up their own courts to punish miscreants, sentencing them to forced labor. The Tannese seethed under the missionaries' rules for three decades. Then, John Frum appeared.

The road drops steeply through more steamy jungle to the shoreline, around the point from Yasur, where I will stay in a hut on the beach. As the sun sets beyond the rain-forest-covered mountains that form Tanna's spine, Jessel's brother, Daniel Yamyam, arrives to fetch me. He has the soft-focus eyes and nearly toothless smile of a kava devotee. Daniel was once a member of Vanuatu's Parliament in Port-Vila, and his constituents included John Frum followers from what was then the movement's stronghold, Ipikil, on Sulphur Bay. "I'm now a Christian, but like most people on Tanna, I still have John Frum in my heart," he says. "If we keep praying to John, he'll come back with plenty of cargo."

Daniel leads me to his village *nakamal*, the open ground where the men drink kava. Two young boys bend over the kava roots Jessel had purchased, chewing chunks of them into a stringy pulp. "Only circumcised boys who've never touched a girl's body can make kava," Daniel tells me. "That ensures that their hands are not dirty."

Other boys mix water with the pulp and twist the mixture through a cloth, producing a dirty-looking liquid. Daniel hands me a half-coconut shell filled to the brim. "Drink it in one go," he whispers. It tastes vile, like muddy water. Moments later my mouth and tongue turn numb.

The men split into small groups or sit by themselves, crouching in the darkness, whispering to each other or lost in thought. I toss back a second shell of the muddy mix, and my head tugs at its mooring, seeking to drift away into the night.

Yasur rumbles like distant thunder, a couple of miles over the ridge, and through the trees I glimpse an eerie red glow at its cone. In 1774, Capt. James Cook was lured ashore by that same glow. He was the first European to see the volcano, but local leaders banned him from climbing to the cone because it was taboo. Daniel assures me the taboo is no longer enforced. "Go with Chief Isaac," he advises. "You can ask him tomorrow."

After I drink my third shell of kava, Daniel peers into my undoubtedly glazed eyes. "I'd better take you back," he says. By the seaside at my hut, I dance unsteadily to the rhythm of the waves as I try to pluck the shimmering moon from the sky and kiss it.

THE NEXT MORNING, I head to Lamakara to talk to Chief Isaac. Surrounded by an eerie doomsday moonscape of volcanic ash, Yasur looms behind the village. But at only 1,184 feet high, the sacred volcano has none of the majesty of, say, Mount Fuji; instead, its squat shape reminds me of a pugna-

WILLIAM HODGES, "CAUTIVS LANDING AT TANNA" / NATIONAL MARITIME MUSEUM, GREENWICH / ART RESOURCE.

CHIEF ISAAC WAN (ABOVE) SAYS HE TALKS REGULARLY TO JOHN FRUM, BELIEVED BY FOLLOWERS TO LIVE IN A SACRED VOLCANO. BENEATH THE VOLCANO (RIGHT), MEN FROM YAKEL VILLAGE PREPARE TO DRINK MIND-ALTERING KAVA. AN ALTAR (OPPOSITE) CELEBRATES FRUM'S NATIVE LAND, WITH BLACKBOARDS BEARING INSTRUCTIONS TO THE FAITHFUL.

cious bulldog standing guard before its master's house. My driver points at the cone. "Haus blong John Frum," he says in pidgin English. It's John Frum's house.

In the village dozens of cane huts, some with rusting tin roofs, encircle an open ceremonial dancing ground of impacted ash and the mound where the American flag flies each day, flanked by the much smaller flags of Vanuatu, ex-colonial ruler France and the Australian Aborigines, whose push for racial equality the villagers admire. Clearly, John Frum has yet to return with his promised cargo because Lamakara is dirt poor in consumer goods. But island men, wrapped in cloth known as lava-lava, women in large flowered dresses and mostly barefoot children in T-shirts appear healthy and seem happy. That's no surprise: like many South Pacific coastal villages, it's a place where coconuts drop by your side as you snooze. Yams, taro, and pineapples and other fruit thrive in the fertile volcanic soil, and plump pigs sniff around the village for scraps. Tasty fruit bats cling upside down in nearby trees.

Chief Isaac, in an open-neck shirt, green slacks and cloth shoes, greets me on the mound and leads me into a hut behind the flagpoles: the John Frum inner sanctum, off-limits to all but the cult's senior leaders and, it seems, male visitors from

abroad. "Office blong me," he says with a smile as we enter.

The hut is dominated by a round table displaying a small U.S. flag on a pedestal, a carved bald eagle and imitation U.S. military uniforms neatly folded and placed in a circle, ready for use on John Frum Day in a little more than a week. Above, suspended by vine from a beam, hangs a globe, a stone ax and a pair of green stones carved into circles the size of a silver dollar. "Very powerful magic," the

BOTTOM: ROGER RESSMEYER / CORBIS

chief says as he points to the stones. "The gods made them a long time ago."

Written on a pair of blackboards is a plea that John Frum's followers lead a kastom life and that they refrain from violence against each other. One of the blackboards bears a chalked red cross, probably copied from U.S. military ambulances and now an important symbol for the cult.

"John Frum came to help us get back our traditional customs, our kava drinking, our dancing, because the missionaries and colonial government were deliberately destroying our culture," Chief Isaac says, his pidgin English translated by Daniel.

"But if John Frum, an American, is going to bring you modern goods, how does that sit with his wish that you lead a kastom life?" I ask.

"John is a spirit. He knows everything," the chief says, slipping past the contradiction with the poise of a skilled politician. "He's even more powerful than Jesus."

"Have you ever seen him?"

"Yes, John comes very often from Yasur to advise me, or I go there to speak with John."

"What does he look like?"

"An American!"

"Then why does he live in Yasur?"

"John moves from America to Yasur and back, going down through the volcano and under the sea."

When I mention Prophet Fred, anger flares in Chief Isaac's eyes. "He's a devil," he snarls. "I won't talk about him."

What about your visit to the United States in 1995? I ask. What did you think of your religion's heaven on earth? He raises his hands apologetically. "I have much to do today. I'll tell you about it another time." On the way back to my hut, it occurs to me that I forgot to ask him to take me to the volcano.

CHIEF ISAAC and other local leaders say that John Frum first appeared one night in the late 1930s, after a group of elders had downed many shells of kava as a prelude to receiving messages from the spirit world. "He was a white man who spoke our language, but he didn't tell us then he was an American," says Chief Kahuwya, leader of Yakel village. John Frum told them he had come to rescue them from the missionaries and colonial officials. "John told us that all Tanna's people should stop following the white man's ways," Chief Kahuwya says. "He said we should throw away their money and clothes, take our children from their schools, stop going to church and go back to living as kastom people. We should drink kava, worship the magic stones and perform our ritual dances."

Perhaps the chieftains in their kava reveries actually experienced a spontaneous vision of John Frum. Or perhaps the apparition has more practical roots. It's possible that local leaders conceived of John Frum as a powerful white-skinned ally in the fight against the colonials, who were attempting to crush much of the islanders' culture and prod them into Christianity. In fact, that view of the origins of the cult gained credence in 1949, when the island administrator, Alexander Rentoul, noting that "frum" is the Tannese pronunciation of "broom," wrote that the object of the John Frum movement "was to sweep (or broom) the white people off the island of Tanna."

Whatever the truth, John Frum's message struck a chord. Villagers on Tanna began throwing their money into the sea and killing their pigs for grand feasts to welcome their new messiah. Colonial authorities eventually struck back, arresting the movement's leaders—including Chief Isaac's father, Chief Nikiau. They were shipped to a prison at Port-Vila in 1941, their subsequent years behind bars earning them status as the John Frum movement's first martyrs.

The cult got its biggest boost the following year, when American troops by the thousands were dispatched to the New Hebrides, where they built large military bases at Port-Vila and on the island of Espíritu Santo. The bases included hospitals, airstrips, jetties, roads, bridges and corrugated-steel Quonset huts, many erected with the help of more than a thousand men recruited as laborers from Tanna and other parts of the New Hebrides—among them Chief Kahuwya.

Where the U.S. armed forces go, so go the legendary PXs, with their seemingly endless supply of chocolate, cigarettes and Coca-Cola. For men who lived in huts and farmed yams, the Americans' wealth was a revelation. The troops paid them 25 cents a day for their work and handed out generous amounts of goodies.

The Americans' munificence dazzled the men from Tanna, as did the sight of dark-skinned soldiers eating the

same food, wearing the same clothes, living in similar huts and tents and operating the same high-tech equipment as white soldiers. "In kastom, people sit together to eat," says Kirk Huffman, who was the curator of Vanuatu's cultural center during his years in the island nation. "The missionaries had angered the Tannese by always eating separately."

It seems this is when the legend of John Frum took on a decidedly American character. "John Frum appeared to us in Port-Vila," Chief Kahuwya says, "and stayed with us throughout the war. John was dressed in all white, like American Navy men, and it was then we knew John was an American. John said that when the war was over, he'd come to us in Tanna with ships and planes bringing much cargo, like the Americans had in Vila."

In 1943, the U.S. command, concerned about the movement's growth, sent the USS *Echo* to Tanna with Maj. Samuel Patten on board. His mission was to convince John Frum followers that, as his report put it, "the American forces had no connection with Jonfrum." He failed. At war's end, the U.S. military unwittingly enhanced the legend of their endless supply of cargo when they bulldozed tons of equipment—trucks, jeeps, aircraft engines, supplies—off the coast of Espíritu Santo. During six decades in the shallows, coral and sand have obscured much of the watery grave of war surplus, but snorkelers can still see tires, bulldozers and even full Coke bottles. The locals wryly named the place Million Dollar Point.

JOHN FRUM DAY, FEBRUARY 15, BRINGS OUT BRIGHTLY BEDECKED DANCERS FROM ALL OVER THE ISLAND. AN UNLIKELY MIX OF BANNERS FLIES ON VILLAGE FLAGPOLES (RIGHT)—AS VARIED AND INCONGRUOUS AS THE STORIES THAT LED TO THE CULT'S INITIAL RISE. WWII SOLDIERS AND SAILORS ON ESPÍRITU SANTO, 1944, MAY HAVE UNWITTINGLY LED ISLANDERS TO FORM THE CULT. MOST SOUTH PACIFIC CARGO CULTS HAVE DISAPPEARED.

After the war, when they returned home from Port-Vila to their huts, the Tanna men were convinced that John Frum would soon join them, and hacked a primitive airstrip out of the jungle in the island's north to tempt the expected American planes from the skies. Across the South Pacific, thousands of other cargo cult followers began devising similar plans—even building bamboo control towers strung with rope and bamboo aerials to guide in the planes. In 1964, one cargo cult on New Hanover Island in Papua New Guinea offered the U.S. government $1,000 for Lyndon Johnson to come and be their paramount chief. But as the years passed with empty skies and seas, almost all the cargo cults disappeared, the devotees' hopes crushed.

At Sulphur Bay the faithful never wavered. Each Friday afternoon, hundreds of believers stream across the ash plain below Yasur, coming to Lamaraka from villages all over Tanna. After the sun goes down and the men have drunk kava, the congregation gathers in and around an open hut on the ceremonial ground. As light from kerosene lamps flickers across their faces, they strum guitars and homemade ukuleles, singing hymns of John Frum's prophecies and the struggles of the cult's martyrs. Many carry the same plea: "We're waiting in our village for you, John. When are you coming with all the cargo you promised us?"

Threaded among the singers' perfect harmonies is a high-pitched Melanesian keening that hones each hymn with a yearning edge. I look around in vain for Chief Isaac until a senior man in the cult whispers that after drinking kava, Isaac has disappeared among the darkened trees to talk to John Frum. The weekly service doesn't end until the sun comes back up, at seven the next morning.

"THE JOHN FRUM MOVEMENT is following the classic pattern of new religions," says anthropologist Huffman. Schisms split clumps of faithful from the main body, as apostates proclaim a new vision leading to sacrilegious variants on the creed's core beliefs.

Which explains Prophet Fred, whose village, Ipikil, is nestled on Sulphur Bay. Daniel says that Prophet Fred split

with Chief Isaac in 1999 and led half of the believer villages into his new version of the John Frum cult. "He had a vision while working on a Korean fishing boat in the ocean," Daniel says. "God's light came down on him, and God told him to come home and preach a new way." People believed that Fred could talk to God after he predicted, six years ago, that Lake Siwi would break its natural dam and flood into the ocean. "The people living around the lake [on the beach beneath the volcano] moved to other places," says Daniel. "Six months later, it happened."

Then, almost two years ago, Prophet Fred's rivalry with Chief Isaac exploded. More than 400 young men from the competing camps clashed with axes, bows and arrows and slingshots, burning down a thatched church and several houses. Twenty-five men were seriously injured. "They wanted to kill us, and we wanted to kill them," a Chief Isaac loyalist says.

NATIONAL ARCHIVES

A few days before Lamakara's annual John Frum celebration, I visit Prophet Fred's village—only to find that he's gone to the island's northern tip to preach, most likely to avoid the celebrations. Instead, I meet his senior cleric, Maliwan Tarawai, a barefoot pastor carrying a well-thumbed Bible. "Prophet Fred has called his movement Unity, and he's woven kastom, Christianity and John Frum together," Tarawai tells me. The American messiah is little more than a figurehead in Fred's version, which bans the display of foreign flags, including Old Glory, and forbids any talk of cargo.

All morning I watch as vocalists with a string band sing hymns about Prophet Fred while several wild-eyed women stumble around in what appears to be a trance. They faith-heal the sick by clutching the ailing area of the body and praying silently to the heavens, casting out demons. Now and then they pause to clutch with bony fingers at the sky. "They do this every Wednesday, our holy day," Tarawai explains. "The Holy Spirit has possessed them, and they get their healing powers from him and from the sun."

Back in Lamakara, John Frum Day dawns warm and sticky. After the flag raising, Chief Isaac and other cult leaders sit on benches shaded by palm fronds as several hundred followers take turns performing traditional dances or modern improvisations. Men and boys clad in stringy bark skirts stride onto the dancing ground clutching replicas of chain saws carved from jungle boughs. As they thump their feet in time to their own singing, they slash at the air with the make-believe chain saws. "We've come from America to cut down all the trees," they sing, "so we can build factories."

On the day before I leave Tanna, Chief Isaac and I finally climb the slippery ash slopes of Yasur, the ground trembling about every ten minutes with each thunderous explosion from within the volcano's crater. Every ear-humming bang sends a huge plume of potentially killer gas high into the sky, a mingling of sulfur dioxide, carbon dioxide and hydrogen chloride.

Darkness brings a spectacular display, as molten lava explodes from the crater's vents, shooting into the air like giant Roman candles. Two people were killed here by "lava bombs," or falling chunks of volcanic rock, in 1994. Chief Isaac leads me to a spot on the crumbling rim, away from the drift of the hazardous gas but still within reach of the incandescent bombs the unpredictable volcano bursts into the air.

The chief tells me about his trip to the United States in 1995, and shows faded pictures of himself in Los Angeles, outside the White House and with a drill sergeant at a military base. He says he was astonished by the wealth of the United States, but surprised and saddened by the poverty he saw among white and black Americans alike, and by the prevalence of guns, drugs and pollution. He says he returned happily to Sulphur Bay. "Americans never show smiling faces," he adds, "and so it seems they always think that death is never far away."

When I ask what he most wants from America, the simplicity of his request moves me: "A 25-horsepower outboard motor for the village boat. Then we can catch much fish in the sea and sell them in the market so that my people can have a better life."

As we look down into John Frum's fiery Tanna home, I remind him that not only does he not have an outboard motor from America, but that all the devotees' other prayers have been, so far, in vain. "John promised you much cargo more than 60 years ago, and none has come," I point out. "So why do you keep faith with him? Why do you still believe in him?"

Chief Isaac shoots me an amused look. "You Christians have been waiting 2,000 years for Jesus to return to earth," he says, "and you haven't given up hope."

Ice fishing on Minnesota's Mille Lacs Lake offers all the comforts of home

HOOK, LINE & TELEVISION

PHOTOGRAPHS BY LAYNE KENNEDY / TEXT BY KEVIN KLING

EVERY YEAR THE CALL GOES OUT: the ice is safe. Open water has turned into prime real estate, and villages of tiny shacks pop up overnight. Thus ice-fishing season opens in Minnesota, home of the nation's icebox, where carpaccio is still made with carp and especially frigid winters are referred to by their year, like fine wine. Although months of subzero temperatures test the heartiest souls, some people actually live in this state on purpose. As I overheard one Northern gentleman say, "When you freeze paradise, it's bound to last a little longer."

Mille Lacs Lake is one of the most popular spots for ice fishing in the Land of 10,000 Lakes. It covers more than 200 square miles in the middle of Minnesota and is known for its walleye, arguably the best-tasting fish you can pull from fresh water. Once the ice sets—late November or early

SHOWING THE COLORS: AMID THE 200 SQUARE MILES COVERED BY MILLE LACS LAKE, DECORATIONS HELP MAKE FINDING A GIVEN ICE-FISHING ADDRESS A LITTLE EASIER.

December, depending—local resort owners start renting out ice-fishing houses and hauling them out onto the lake, where bars, churches and the random bowling alley follow. By January, there will be around 5,000 angling abodes on the ice, which qualifies as a small city in Minnesota. (And at Gull Lake, more than 9,000 folks competed in last year's annual Brainerd Jaycees Ice Fishing Extravaganza, but that's a one-day affair involving less housing.)

To most people below the 48th parallel, ice fishing must seem like pounding your head against the wall, in that it's not doing it in the first place that makes the most sense. While it's true that it's not for everyone, it sure beats staying cooped up inside your house for six months. Here are some basics to get you started:

First, find a spot on the lake where the ice is thick enough to support your car without its dropping through. If you're unsure, watch someone else drive out first. Next, auger a fishing hole in the ice. An ice auger is like a posthole digger with a large screwlike cutting blade rotated by hand or motor. In the fun department, the powered ice auger sits just behind the chain saw and way ahead of the power leaf blower.

Most people opt for an ice-fishing house, a 10- by 16-foot shack with a propane stove and holes in the floor. The holes are usually covered by hinged plywood that can be flipped up for fishing. Some fishing houses are rudimentary, but others come with stereos, TVs, kitchens, bunk beds, couches, or even hot tubs and saunas parked next door. Ice anglers tend to have a lot invested in their fish houses. The shacks are usually painted to reflect the owner's personality, hobby, favorite sports franchise or cause. On the lake, brilliant colors are an advantage. An all-white house probably wouldn't be found until spring.

You'll need an ice-fishing pole with a reel, monofilament line and bobber. An ice-fishing pole looks pretty much like any other fishing pole but shorter, since casting isn't an option. You'll need a skimmer, or slotted ladle, for clearing out the ice that will form on the hole, and a five-gallon plastic bucket to haul your gear and your catch, or "tonnage." For bait, use a minnow or wax worm on a hook with a brightly colored weight. The best fishing is usually just off the bottom of the lake, which is only about 40 feet deep at most. A slight tug, or "jigging," on the line every few seconds draws attention to the bait.

IT BEATS PLAYING PINOCHLE ALL WINTER—ESPECIALLY WHEN YOUR FISHING SHACK FEELS LIKE HOME (OPPOSITE). THAT'S OWNER MARK RISLUND (LEFT) WITH HIS BUDDY RICHARD MEYER. SOME PEOPLE PAY FOR A SNOWPLOW TO KEEP THE ICE PASSABLE (BOTTOM). PART OF THE FUN IS THAT YOU NEVER KNOW WHAT YOU'RE GOING TO PULL THROUGH THE HOLE IN THE ICE (BELOW, A YELLOW PERCH).

CATCH OF THE DAY: THE ANNUAL BRAINERD JAYCEES ICE FISHING EXTRAVAGANZA PUTS A COMPETITIVE EDGE ON THINGS. LAST YEAR'S PRIZES TOTALED $150,000 AND DREW 9,000 ENTRANTS TO GULL LAKE, ABOUT 30 MILES WEST OF MILLE LACS LAKE, WHERE STEVE KROPP (RIGHT) HAD THE PLACE TO HIMSELF, MORE OR LESS.

There are other ways to increase your luck, such as using feeding-time charts and depth finders and topographic maps of the lake bottom that show ridges and shoals. Every fisher man or woman has a secret weapon, a lure that will make a fish react against its better judgment, whether by seduction, rage or appetite. Some folks spray their lures with fish oil to take away the human scent. (A word of caution: keep the fish oil away from the beer.)

The fun of ice fishing is that you never know what you might catch: perch, trout, northern pike, muskie, crappie—even the coveted walleye. Or you can drop a line down deep and try to snag something prehistoric with a lantern on its head. You just don't know what's going to come out of that hole. Maybe a trophy fish—something to take to the taxidermist, maybe a reason to fix up the basement, put a piece of shag carpet over the oil stain, make wise investments with confidence gained and spend more time with the family. A whole world of new possibilities opens. I heard about one guy who felt a tug on his line and pulled up sharply to set the hook. There was a tremendous fight until finally up through the hole came a license plate. He threw the plate in the corner and was rebaiting his line when he had a fearsome epiphany. He ran outside to see the hole in the ice where his truck had been. (That one may be apocryphal.)

We used to call ice fishing "sitting around practicing for when we got old," but now we just call it "sitting around." Many fisherpeople use a "tip-up," a device that sends up a flag when a fish bites. This frees one to multitask—that is, fish and play cards, fish and watch TV, fish and learn Spanish, and so on. Other warning systems include buzzers, bells, whistles, car alarms and voice-activated computers ("I believe you have a fish, Dave"). I knew a high-school band teacher who rigged cymbals to crash when a fish took the bait.

Northern Minnesota is known for its stoic Nordic types, but to ice fish I think you also have to have a sense of humor. The people, like the weather, seem cold at first, but then you get used to them. Just remember: when a guy sitting next to you doesn't talk to you for hours, it doesn't mean he doesn't like you. If he then asks, "Cold enough for you?" take it as a sign of affection. Answer with, "I'd wear a coat," and you'll be fine.

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In Search of the Roots of Genius

Mozart

BORN IN SALZBURG IN 1756, MOZART (FANCIFULLY DEPICTED IN THE SAME SETTING, 1902) FLED THE PROVINCIAL CITY (TODAY A REPOSITORY OF BAROQUE SPLENDOR) FOR VIENNA. SALZBURG, HE DECLARED, WAS "NO PLACE FOR MY TALENT."

On the 250th anniversary of the composer's birth, the author scours Salzburg and Vienna for traces of the master's mischievous spirit

BY EDWARD ROTHSTEIN

IT IS THE KIND OF JOKE Mozart would have appreciated. Like the wit in some of his operas, it is unexpected, mischievous, deflating, childish, even a bit humiliating: it can be found on the outskirts of Salzburg, Austria, at Hellbrunn, an elaborate Baroque palace built by Salzburg's archbishop Markus Sittikus in the early 17th century. In an intimate outdoor amphitheater where statues celebrate the glories of Rome, there is a rectangular marble table around which ten immovable stools are mounted. The table contains a spring-fed well, used to cool wine during outdoor banquets. Sittikus would sit facing his guests in all of their summer finery, his formal gardens and ponds stretching out before him. Then he would give a signal. And lo, out of every seat but his own would come a jet of cold spring water. No sooner would his guests leap up in surprise than another series of fountains would erupt from hidden openings in the floor's surface, creating arches of spray.

One reason I thought of Mozart while watching these *Wasserspiele* (trick fountains), of course, was because I had come to Salzburg, the town where the composer was born, January 27, 1756, and Vienna, the city where he died a scant 35 years later, likely of complications from rheumatic fever, to survey the terrain before this year's celebrations of the composer's 250th birthday. The city of Vienna is spending some 30 million euros on musical commissions, concerts and academic symposiums, along with a festival of new works overseen by theatrical director Peter Sellars; a new six-floor museum there has been shaped out of the building in which Mozart lived for just over two years. Salzburg, which boasts the two apartments Mozart called home before he settled in Vienna at age 25, possesses two museums devoted to Mozart, along with his childhood violin, his clavichord, a lock of his hair and paintings of the composer and his family. The avant-gardish theater director Robert Wilson has also been brought in to impose his vision on Mozart's childhood apartment; all of Mozart's operas will be performed at this summer's Salzburg Festival; even a "Mozart Cycling Path" links points of interest, with signposts of Mozart's silhouetted head marking the route.

> The composer of *Don Giovanni* seems to inhabit an otherworldly musical realm. And that makes it all the more remarkable to follow in Mozarts' all-too-earthly footsteps.

Hellbrunn is not part of these celebrations, but perhaps it should be. For 200 years, every important visitor to Salzburg's court was taken there; by the 18th century much of Hellbrunn had become a grand public park. I imagine Mozart visiting as a child, during one of the interludes between his epic journeys through the courts of Europe, where his father, Leopold, was showing off his prodigious children.

If he did visit as a child, he would also have seen Hellbrunn's newest novelty, a mechanical theater in which 200 automated wooden figures populate an Austrian town square, accompanied by music from a hidden, hydraulically operated organ. It was an animated music box run by water, a marvel that would have caught the attention of Mozart's father, who composed music for the mechanical organ in the fortress that looms over Salzburg—music still heard here.

Of all the Mozartean landmarks I saw in Salzburg and Vienna, Hellbrunn most profoundly captures something essential about his spirit. This is worth understanding, because over the past 200 years, Mozart has continued to elude our grasp. He began his career as a wunderkind—a literal wonder child over whom the courts of Europe fawned—and ended it in debt and dismal circumstances, but he is one of the touchstones of the Western classical tradition. In the popular imag-

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LEOPOLD MOZART (WITH WOLFGANG AND DAUGHTER, NANNERL, 1763) TOURED HIS PRODIGIOUSLY GIFTED CHILDREN ACROSS EUROPE. "EVERYONE," WROTE LEOPOLD OF HIS 7-YEAR-OLD SON, "SAYS THAT HIS GENIUS IS INCOMPREHENSIBLE."

MUSÉE CONDÉ / AKG-IMAGES; P. 84 MOZART MUS-D STIFT MOZARTEUM / AKG-IMAGES; P. 85 TONI ANZENBERGER / ANZENBERGER 46432

At the palace of Hellbrunn, the spirit of jest reigns supreme. And that is crucial to understanding Mozart.

ination, he is the eternal man-child, whose music is so energized with healing powers that it is thought to increase infant intelligence (the so-called Mozart effect). Even to cognoscenti, the composer of the *Jupiter* Symphony and the creator of *The Marriage of Figaro* and *Don Giovanni* seems to inhabit an otherworldly musical realm. And that makes it all the more remarkable to follow in his all-too-earthly footsteps, to trudge up the narrow staircase in Mozart's *Geburtshaus* (birth house) in Salzburg and look out at the building's congested courtyard or to walk the short distance his coffin was carried in Vienna from his deathbed to the church where friends, family and admirers paid their last respects before his body was unceremoniously dumped in an unmarked grave, the fate of most of Vienna's untitled populace.

The heavenly music and the mundane man: Can they be reconciled? This was the problem famously posed in Peter Shaffer's play (and movie) *Amadeus* (to be performed on a floating stage on Salzburg's river this summer): How does genius and beauty arise out of vulgarity, pettiness, ordinary life? Walking in Salzburg, one is brought up short trying to imagine what any of this might have to do with the painful beauties of the music. The ornate churches and regal halls of Salzburg must have shaped Mozart's aesthetic, their grand ambitions combined with meticulous attention to detail, their elaborate rhetoric combined with cultivated refinement. But these settings overwhelm in ways Mozart's music does not, dwarfing the viewer with self-conscious magnificence.

That is why I keep thinking of Hellbrunn, where another spirit reigns. It is not a religious place, though an archbishop built it. It is not intent on creating something awe-inspiring or timeless. It never leaves behind the human, yet it also seems to look beyond it. It is playful but not frivolous; serious but not solemn. In this, it is almost Mozartean. The treachery of the stone table, for example, is part of an epic mythological journey along a path through the gardens filled with mechanical and natural wonders—grottos, fountains, citrus trees, statuary—with water providing the gurgling musical accompaniment. Sittikus constructed a grotto seemingly carved out of the stone by flowing waters, in which Orpheus plays violin for a sleeping Eurydice, hoping to save her from the grasp of Hades. Fools and comic figures jest in adjacent ponds. In another grotto devoted to Neptune, its walls mosaicked with shells, a devilish head leers with blinking eyes and flicking tongue—a robot moved by hidden water currents; water jets erupt unexpectedly out of the floor, and as one flees Neptune's powers, other jets spout in spasmodic provocation. Music, myth, trickery and water all create a fantastical realm. Anything is possible, everything is significant, but nothing is what it seems. It is like the garden in the finale to *Figaro*, where the characters are fooled by mask and shadow, or the priest Sarastro's world in *The Magic Flute*, in which fire and water offer threatening trials that only music has the power to overcome.

ALTHOUGH BUILT FOR SALZBURG'S ARCHBISHOP MARKUS SITTIKUS IN THE EARLY 1600S, HELLBRUNN PALACE (WHERE TODAY'S VISITORS RUN A GANTLET OF FOUNTAINS) REFLECTS THE CONTRADICTORY WELLSPRINGS OF MOZART'S BRILLIANCE: AUSTERE BEAUTY AND MISCHIEVOUS PLAYFULNESS.

MASSIMO LISTRI / CORBIS; MANFRED HORVATH / ANZENBERGER

At Hellbrunn, though, the spirit of jest reigns supreme. And that is crucial to understanding Mozart. We know so much about Mozart's early life—more than about almost any other composer's—because as he grew to maturity, he spent much of his time in coaches with his father, traveling between major European courts where he and (at first) his sister, Nannerl, four years his elder, displayed their accomplishments. Letters had to be written home. By the time he was 20, Mozart had spent half his life on the road. The let-

IN SALZBURG (ABOVE LEFT, MUSICIANS PERFORM OUTSIDE MOZART'S BIRTHPLACE; CARRIAGES CROWD A SQUARE, RIGHT, AND STUDENTS, BELOW, PRACTICE HIS PIECES), THE 18TH CENTURY REIGNS. MOZART, HOWEVER, SCORNED HIS ROOTS, DECLARING: "HOW I DETEST SALZBURG."

ters home—Wolfgang's own or his appendices to his father Leopold's sober accounts of travels and monies earned and medals awarded—are more spirited, playful and revealing than the music he wrote under his father's guidance.

At 16, he wrote a letter to his sister with alternate lines upside down. "Oidda," he would write in reverse Italian, or even sign his name in the same code: "gnagflow Trazom." Just after his 22nd birthday, he wrote a letter to his mother full of jests about muck and gas and effluvium. Another letter Mozart wrote to his sister is so full of diversions that translator Emily Anderson tried to mirror its playfulness: "I can't write anything sensible today, as I am rails off the quite. Papa be annoyed not must. I that just like today feel. I help it cannot. Warefell. I gish you nood wight. Sound sleeply. Next time I'll sensible more writely."

But there was a larger point to these jests. Sitting in that small coach riding over often primitive roads that could leave Wolfgang picturesquely complaining about his sore bottom, a large-scale social drama was taking place: the old system of court patronage was being loyally challenged by the father and playfully provoked by the son. Leopold, employed by Salzburg's archbishop and given generous leaves of absence to display his son's genius, was a stern master, determined to school Mozart and Nannerl not only in music but also in the ways of the world. Though employed by the court, he chafed at its expectations and scorned his "always fawning" colleagues. His intention was to earn more money and find a better court position for himself, using his children as bait. "Wolfgang's good fortune and success," he wrote to his wife, "will be our sweetest revenge."

Wolfgang, who, at first, worshiped his father ("next to God comes Papa," he wrote), loved dressing in courtly clothing, but he also treated it all as a form of play, as a variation, perhaps, on his musical trickery, when he amazed listeners at his ability to reproduce music heard once or displayed his ability to recall quarter-tone variations of pitch.

TONI ANZENBERGER / ANZENBERGER (2); JOHN VAN HESSELT / CORBIS

MOZART'S FATHER ALSO ONCE SOUGHT TO ESCAPE THE CONFINES OF SALZBURG (WHERE TODAY, THE FAMILY'S HOUSE, ABOVE, CONTAINS MEMORABILIA INCLUDING SCORES, BELOW). "WOLFGANG'S GOOD FORTUNE," WROTE HIS FATHER, "WILL BE OUR SWEETEST REVENGE."

Leopold's correspondence recounts that the 6-year-old Wolfgang jumped into the lap of Maria Theresa, empress of the Holy Roman Empire, "caught her around the neck, and vigorously kissed her"; after such familiarity, what kind of awe could the adult have for ruling power? "These are the people who can help you," Leopold would instruct him. But Wolfgang, in letters home, would write playfully about bodily functions, make multilingual puns (he called the sea near Italy the Merdeterranean), and sketch risqué doodles. To Leopold, Wolfgang kept slighting matters that had to be taken seriously. "Your whole intention seems to be to ruin me," Leopold once wrote, "simply in order to go on building your castles in the air."

But Mozart's playfulness would not be quashed. It was a flexing of intellectual muscles as well as a provocation. He wrote a scatological acrostic on the word "papa." And his jests could be cruel. "I can never resist making a fool of someone," he confessed. When he lived in Vienna, Mozart wrote horn concertos for a Salzburg musician, Joseph Leutgeb, but at a price: Mozart tossed his scores around the room and required Leutgeb to assemble them on all fours. On the autograph of one such concerto, Mozart calls the horn player an "ass, ox and simpleton." Mozart's wit was not always ethereal.

But it was iconoclastic. And as a target, Salzburg was high on the list—something that might seem startling given the city's reinvention of itself. "How I detest Salzburg," Wolfgang wrote in 1778, "and not only on account of the injustices which my dear father and I have endured there." Of Salzburg's musical scene, he complained: "One hears nothing; there is no theater, no opera." In a letter to his father in 1781, he wrote that "when I play or when any of my compositions are performed, it is just as if the audience were all tables and chairs." Salzburg, he declared, is "no place for my talent."

The distaste became mutual. As Mozart biographer Maynard Solomon points out, Salzburg was astonishingly late among European cities to create any kind of a Mozart memo-

MANFRED HORVATH / ANZENBERGER; TONI ANZENBERGER / ANZENBERGER

VIENNA (WHERE THE SPIRE OF ST. STEPHEN'S, ABOVE, MARKS MOZART'S FUNERAL SITE AND, AT THE ORPHANAGE CHURCH, BELOW, THE 12-YEAR-OLD COMPOSER PERFORMED) SEDUCED MOZART WITH ITS URBANE MUSICAL LIFE. "VIENNA," HE WROTE, "IS THE LAND OF THE CLAVIER."

rial. Not until 1842 was a statue, by Ludwig Schwanthaler, erected in his memory. But look closely: its monumentality is out of character with Mozart's music; it seems even to displace him, as if imitating monuments celebrating Beethoven's brooding genius.

There was bad blood here, even if it now seems difficult to fathom why. In the old city of Salzburg, Mozart's visage now almost defines the city, appearing on tourist literature, wrapped around chocolates, labeling liqueur bottles; his name appears on a bridge, a plaza and, this celebratory year, just about anything else that can be labeled. But Salzburg still has the aura of a place of retreat. It escaped many traumas of Bavarian and German warfare over the centuries because it was off the main trading route (at least until the Nazis saw its prestige as a cultural front). And though the city's Hohensalzburg Fortress is far from Mozartean in character, the ways the city combines Italianate ornament in its Baroque facades makes Salzburg seem more playful than imposing; warmth is mixed with eruptions of fantastical grandeur. The spirit of Italy shaped Salzburg's brand of the German Baroque. Italian architects designed Hellbrunn and the Salzburg Cathedral; Italian opera singers and musicians commanded higher salaries than German counterparts (a source of complaint even in Mozart's time). Mozart's training was considered incomplete until he had toured Italy and written Italian opera.

But in Mozart's accounts, Salzburg is more like a realm ruled by the dark empress in *The Magic Flute*, the Queen of the Night. During his time, it may have been a provincial locale with all the limitations at which a genius would bristle, but it also boasted a university and a vibrant musical tradition that included Heinrich Biber in the 17th century and Michael Haydn (Franz Joseph Haydn's younger brother) in Mozart's day. Salzburg was notoriously conservative—in the 1730s 20,000 Protestants were exiled from the Catholic town; and in 1762 a witch was burned there—but as Robert W. Gutman points out in his recent biography of Mozart, Leopold and

TONI ANZENBERGER / ANZENBERGER; CHRISTINE DE GRANCY / ANZENBERGER

IN THE VIENNA APARTMENT WHERE MOZART WROTE *THE MARRIAGE OF FIGARO* (NEWLY REOPENED, BELOW), THE COMPOSER TRANSFORMED THE ART OF OPERA, ADDING WIT AND CYNICISM. FOR 200 YEARS, WINTER BALLS (AT THE STATE OPERA HOUSE, ABOVE) HAVE DAZZLED THE CITY.

TONI ANZENBERGER / ANZENBERGER (2)

others were devotees of the Enlightenment (his estate contained two microscopes and a telescope). The power of the court was also mitigated by the growing power of commerce. Mozart's patrons were not well-born noblemen, but wealthy burghers such as Johann Hagenauer, a banker and wholesale grocer who owned the house in which Mozart was born. From the Mozarts, one sees only Salzburg's provinciality and venality; from the history, one also sees cultural attainments and a highly educated mercantile class.

Those contradictions are still reflected in today's unpredictable mixtures of vulgarity and refinement. Mozart tourists are steered to a dinner concert at the Stiftskeller St. Peter, the oldest restaurant in central Europe; the Mozarts ate there when it was already more than 900 years old. As musicians perform in period costume, a three-course dinner is served (including, when I attended, an ice-cream dessert decorated with a chocolate syrup treble clef and a distinctive cocoa-powder profile of Mozart). A perfect recipe for kitsch, perhaps, but the selection of Mozart's arias I heard between courses had as much refinement as the cooking. Elsewhere, expectations are also undone. In the museums created out of Mozart's birthplace and the house in which the family lived after 1733, venerated objects—a lock of Mozart's hair, his agate snuffbox—are mixed with unimposing replicas and copies. It seems at times that there is more museum space devoted to Mozart than there are objects to fill it or ideas to shape it. A "multimedia wax museum" called Next to Mozart—located literally next to Mozart's birthplace—contains wax scenes of 18th-century Salzburg, scenes from *The Magic Flute*, and even a climactic vision of Julie Andrews' character Maria and the von Trapp children from *The Sound of Music*, much of which was filmed in and around Salzburg.

Consistency, at any rate, is not to be had, and probably never was. But the conflict shaped Mozart's life. And his rebellion came at the precise moment that the old social models were also weakening. When Mozart, along with his father,

"Even if I had to go begging," Mozart wrote to his father, "I would never again serve such a lord."

was contracted to serve Archbishop Colloredo's court after years of acclaim for his prodigious abilities, he bristled at his duties. "I never know how I stand," he wrote his father in 1778. "I am to be everything—and yet—sometimes nothing!" He was, in other words, an employee. Colloredo's reputation has been sullied by his famous intolerance of both father and son, but the archbishop may have had reason. Leopold, a violinist, ultimately settled into playing second fiddle, so to speak, to both his son and Michael Haydn. But Mozart squirmed under the mantle of servitude, and carried himself with what must have been intolerable swagger. "If you will not serve me properly," the archbishop once told him, "clear out." When Mozart traveled with the archbishop's staff to Vienna in 1781, he provoked a quarrel with Colloredo that led to a shouting match. "Even if I had to go begging," Mozart wrote to his father after he was kicked—perhaps literally—out of service, "I would never again serve such a lord."

So there he was: at the age of 25, Mozart had cut himself off from the only musical world he had known and was left alone in Vienna to make his way as a freelancer—putting together concerts, soliciting commissions, teaching piano, staging operas—preferring uncertainties of liberty to obligations of indentureship. It was, in its mundane fashion, something of a cultural revolution. After Mozart, composers were no longer court composers. Mozart was, like Leporello in *Don Giovanni*, justly wary of the demands of any kind of service, and like Figaro, intent on undermining the perquisites of nobility. Vienna, at any rate, is where Mozart shaped this new kind of existence. He called it "a glorious place—and for my métier, the best in the world."

AS HE FREQUENTED THE CITY'S COFFEEHOUSES (CAFÉ SPERL, ABOVE) AND WALKED ITS STREETS (RICH IN BAROQUE ORNAMENT, INCLUDING THE HOLY TRINITY MONUMENT, OPPOSITE), MOZART FOUND A TRUE HOME. HE CALLED VIENNA "A GLORIOUS PLACE . . . THE BEST IN THE WORLD."

THE ROOM in which Mozart likely slept during his most productive and prosperous years in Vienna (1784-87) still has its original wall coloration: *trompe l'oeil* plasterwork that makes the walls of this bourgeois room seem palatial in character if not in dimension. The plaster is subtly colored to look like marble, with minute veins and variations. On the ceiling's plaster medallions, putti fly, streaming gilded vines in their wake. At the ceiling's center, a goddess rests upon clouds, holding a garland. Mozart did not ask that the room be decorated in this fashion; the previous owner of the building was Alberto Camesina, one of the most famous stucco artists of the 18th century. But Mozart must have found the room congenial, recalling the palaces in which he performed as a child. He may have been a rebel against the old order, but he appreciated its pleasures. A block from the old city's center, this nearly 2,000-square-foot apartment declared its occupant a success. It is also the only Mozart Vienna residence that still stands, which is why it is now at the center of the new Mozart House Museum.

Of course, one is reluctant to put too much weight on places that just happen to survive the wrecker's ball. And Mozart the composer was never really concerned with place. His music does not strain to evoke natural phenomena or scenes, like Haydn's or Beethoven's. Even his letters are less concerned with place than behavior: what was said and done, how somebody looked, what came to mind. Did he even notice the sublime scenery he traveled through? Mozart liked to compose with bustle and noise around him, not because he was imitating it, but because he was opposing it: composing was an act of focus. Mozart's music is not powerful because of where it was written. It created a place; it did not evoke one.

But we celebrate the places in which Mozart composed because they give us something to grab onto, some way of

TONI ANZENBERGER / ANZENBERGER (2)

Foto Wachtl
WEIHNACHTSPUNSCH U. LEB

Joseph Haydn declared: "Before God, I tell you your son is the greatest composer known to me."

grasping the relationship between our mundane world and Mozart's ethereal one. A sense of place also reminds us that even transcendent music does not really transcend. If we treat it divorced from this world and its experiences, we are missing some of its resonance, some of its opposition and some of its jest.

This is why it is so intriguing to gaze out from Mozart's marbleized room on the second floor and look straight down on narrow Blutgasse. The composer lived above . . . Blood Alley. There is no agreement about how Blutgasse got its name: Was it the site of medieval executions or the butchering of animals? At any rate, could Mozart not have been aware of the irony? Here is the apartment where he played billiards, enjoyed evenings of music making and acclaim, but one look outside could bring him back to earth. Mozart's triumphs often have that kind of doubleness, as when, at the peak of his success, he invited his father to visit.

In February 1785, Leopold, vastly skeptical about his son's prospects, came to visit him in Vienna for the first and only time. Leopold was all too ready to express disapproval of his son's marriage in 1782 to Constanze Weber, the daughter of a former landlady. Could a skeptical father have met a more triumphant demonstration? The apartment was in tumult as Mozart was supervising the copying of a piano concerto he had written for a concert the evening of the day that Leopold arrived (the father called the work "superb"). The following day Joseph Haydn, the era's master of composition, visited the apartment to hear Mozart's most recent three string quartets. According to Leopold, Haydn told him: "Before God and as an honest man, I tell you that your son is the greatest composer known to me either in person or by name." The next evening, during another concerto played by his son, Leopold said, "Tears of sheer delight came to my eyes"; he also witnessed the Emperor of Austria salute his son. The concerts, dinners and flow of money, both in and out of Wolfgang's coffers, dizzied Leopold.

MILOS FORMAN'S 1984 *AMADEUS* (TOM HULCE, AS MOZART, WITH EMPEROR JOSEPH II) PORTRAYED THE COMPOSER AS A BRILLIANT BUFFOON. THE FILM, SAID THE *NEW YORK TIMES*, WAS "A GLITTERING IMPROVISATION ON [MOZART'S] LIFE."

But the pace also wore. Or perhaps it became clear to Leopold that he had been wrong in dismissing Wolfgang's ability to make his way in the world, and that he, Leopold, had become superfluous. Eventually, he complained to Nannerl: "Concerts every day and unending teaching, music-making, and composing. Where am I supposed to go? If only the concerts were over! It is impossible to describe the confusion and commotion." In fact, the visit seemed to solidify a rift between Mozart and his father, and also between Mozart and his sister. In early 1787, perhaps, before moving out of this very apartment, and before his father's death, Mozart began to write a kind of a farce he called *Der Salzburger Lump in Wien*—"The Scamp from Salzburg in Vienna"—in which his barbed rebelliousness came into play. Its main character is Herr Stachelschwein—Mr. Porcupine—who rejoices over the inheritance he will get upon his father's death. As it turned out, Mozart was less fortunate. Leopold left nearly everything to his daughter. Mozart even had to struggle to get his scores back from his father's estate.

Maynard Solomon's biography explores the immense struggle waged by Mozart during these years, in which his roles as son, husband and brother were all at stake. Later, the money flowing in flowed out even faster. Debts mounted. Was there gambling? Loss of money at billiards? There were rumors of promiscuity, tensions with Constanze, pleas to friends for loans, all accompanied by changes in Vienna's cultural and political scene that may have made it more difficult for Mozart to sell his concerts.

Not even genius can escape human frailties. Vienna, the scene of Mozart's greatest triumphs, is also the scene of his greatest trials. Perhaps this accounts for the slight edge to Vienna's 2006 celebrations of Mozart. Major performances, of course, are planned, and the historic Theater an der Wien will reopen as an opera house: home, this year, for Mozart operas. But Peter Marboe, director of the city's Mozart festivities, writes in his prospectus: "This is not to be a year of marketing or spectacular events, not to be about nostalgia and definitely not a Mozart promotional year." Rather, he goes on, it is "far more about considering our times and our future, with the aid of Mozart, in the spirit of Mozart." Peter Sellars' mini-festival in November and December 2006, named after Mozart's Masonic Lodge ("New

ORION / EVERETT COLLECTION

"If I sing something out of my opera," Mozart wrote, "I have to stop at once, for this stirs my emotions."

Crowned Hope"), will celebrate Mozart, Sellars says, as "the world's greatest composer of forgiveness and reconciliation" who helped prepare "a path for a new society." The festival, with other partners, has commissioned new operas, compositions, architectural and community projects and international feature films—all presumably inspired by Mozart, and featuring artists from around the world.

Whether these works will carry forward a Mozartean vision or whether they will change our perceptions (some of these works will be heard later in the United States) will not be known for some time. For one thing, it is still unclear just what kind of vision Mozart himself represents. It may not be as utopian, forgiving or as grandly international as Sellars' themes suggest, but more tragic, concerned with opposing realms, the heavenly and the netherworldly, the ethereal and the mundane. And somehow, the power of jest plays a role.

Biographer Solomon describes a Viennese carnival in 1786 in which Mozart, dressed in robes like an Oriental philosopher, distributed a broadsheet titled "Excerpts from the Fragments of Zoroaster" containing eight riddles and 14 proverbs. The riddles were darkly personal, filled with imagery of imprisonment, mutilation and betrayal. One starts: "We are many sisters; it is painful for us to unite as well as to separate. We live in a palace, yet we could rather call it a prison." (Answer: teeth.) For the "scamp from Salzburg in Vienna," the riddles were attempts to tease harmony out of a world of paradox. Mozart jubilantly played with language as a youth; in his maturity, he became increasingly more clever and dark.

MOZART'S BURIAL SITE IN VIENNA'S ST. MARX CEMETERY IS UNKNOWN (A MEMORIAL ERECTED THERE C. 1891). ACCORDING TO MOZART SCHOLAR MAYNARD SOLOMON, FRANZ SCHUBERT MUSED IN 1816: "THE MAGIC NOTES . . . HAUNT ME."

During these years, Mozart also, in collaboration with librettist Lorenzo da Ponte—himself a master of masquerade, born a Jew, educated as a priest, a restless lover and an avid trickster—wrote his greatest operas. In their collaborations—*Figaro*, *Don Giovanni* and *Così fan tutte*—the accepted order of things is undermined by trickery, by seduction, by savvy manipulation; in each opera too, there are scenes of masquerade and confusion. And in varied ways, the listener is lured into differing reactions to a revolution in sensibility: we cheer it in *Figaro*, we fear it in *Don Giovanni*, we worry over its power in *Così*. It is as if the very nature of humanity were being tested in these operatic laboratories, exposing it to the diverse forces of the Enlightenment. In Vienna, I saw a production of *The Magic Flute* at Schloss Schönbrunn that did this in yet another way: it was performed entirely by marionettes—their movement synced to a masterly recording by Karl Böhm. Nothing was missed. The music deeply humanized the characters; the puppets, in turn, revealed how artificial the human can sometimes be. That too is a form of knowledge. While working on *The Magic Flute*, Mozart wrote to Constanze: "If I go to the piano and sing something out of my opera, I have to stop at once, for this stirs my emotions too deeply."

Which brings us back to Hellbrunn. Mozart once fantasized about creating a secret society in Vienna, one even more exclusive than the Masonic lodge he had joined; he was going to call it the Grotto. Could he have had the mythological grottoes of Hellbrunn in mind? Their creator, Sittikus, had also been a music lover. Hellbrunn may have hosted the first performances of opera north of the Alps, including Monteverdi's *Orfeo,* which might have left its influence on the Orpheus grotto, with its tale of the musician who tries to lead his love out of Hades. In fact, the natural springs that feed Hellbrunn's fountains were thought to connect literally to the underworld. That realm's German god is named Hel; Brunn means well or fountain; hence, Hellbrunn. These were fountains linked to Hell and streaming into our world—watery versions of Mozart's ghostly Commendatore, who drags Don Giovanni back down with him, in retribution. But Hellbrunn is not a celebration of Hell. After all, an archbishop built these fountains. Instead, many of its mythological statues and fountains deal with the crossing of realms, the negotiation of boundaries, the combination of opposites. The netherworld is not abolished or denied; it is, instead, acknowledged, incorporated, and thus, transcended—something that may have been Mozart's dream as well.

Over the door in one room of Hellbrunn there is a painted Latin motto, *numen vel dissita iungit* ("a divine power unites even opposites"). But for Mozart it is not water that makes these connections. It is music.

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A LESSON IN HATE

HOW AN EGYPTIAN STUDENT CAME TO STUDY 1950S AMERICA AND LEFT DETERMINED TO WAGE HOLY WAR **BY DAVID VON DREHLE**

BEFORE SAYYID QUTB became a leading theorist of violent jihad, he was a little-known Egyptian writer sojourning in the United States, where he attended a small teachers college on the Great Plains. Greeley, Colorado, circa 1950 was the last place one might think to look for signs of American decadence. Its wide streets were dotted with churches, and there wasn't a bar in the whole temperate town. But the courtly Qutb (COO-tub) saw things that others did not. He seethed at the brutishness of the people around him: the way they salted their watermelon and drank their tea unsweetened and watered their lawns. He found the muscular football players appalling and despaired of finding a barber who could give a proper haircut. As for the music: "The American's enjoyment of jazz does not fully begin until he couples it with singing like crude screaming," Qutb wrote when he returned to Egypt. "It is this music that the savage bushmen created to satisfy their primitive desires."

Such grumbling by an unhappy crank would be almost comical but for one fact: a direct line of influence runs from Sayyid Qutb to Osama bin Laden, and to bin Laden's Egyptian partner in terror, Ayman al-Zawahiri. From them, the line continues to another quietly seething Egyptian sojourning in the United States—the 9/11 hijacker Mohammed Atta. Qutb's gripes about America require serious attention because they cast light on a question that has been nagging since the fall of the World Trade Center: Why do they hate us?

Born in 1906 in the northern Egyptian village of Musha and raised in a devout Muslim home, Qutb memorized the Koran as a boy. Later he moved to Cairo and found work as a teacher and writer. His novels made no great impression, but he earned a reputation as an astute literary critic. Qutb was among the first champions of Naguib Mahfouz, a young, modern novelist who, in 1988, would win the Nobel Prize in Literature. As Qutb matured, his mind took on a more political cast. Even by the standards of Egypt, those were chaotic, corrupt times: World War I had completed the destruction of the Ottoman Empire, and the Western powers were creating, with absolute colonial confidence, new maps and governments for the Middle East. For a proud man like Sayyid Qutb, the humiliation of his country at the hands of secular leaders and Western puppets was galling. His writing drew unfavorable attention from the Egyptian government, and by 1948, Mahfouz has said, Qutb's friends in the Ministry of Education were suf-

Sayyid Qutb (top), already angry at Egypt's secular leadership, took an instant dislike to what he saw in the United States. Later, he would influence Osama bin Laden (above, left, with Ayman al-Zawahiri) and Mohammed Atta (center), a leader of the 9/11 hijackers.

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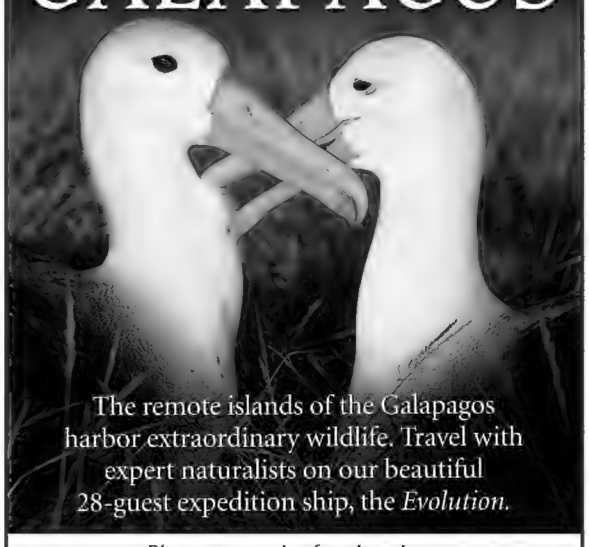

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ficiently worried about his situation that they contrived to send him abroad to the safety of the United States.

Some biographical sketches suggest that Qutb arrived with a benign view of America, but if that's true it didn't last long. During a short stay in Washington, D.C., he witnessed the commotion surrounding an elevator accident and was stunned to hear other onlookers making a joke of the victim's appearance. From this and a few offhand remarks in other settings, Qutb concluded that Americans suffered from "a drought of sentimental sympathy" and that "Americans intentionally deride what people in the Old World hold sacred."

This became the lens through which Qutb read nearly every American encounter—a clash of New World versus Old. Qutb easily satisfied the requirements at the graduate school of the Colorado State College of Education (now known as the University of Northern Colorado) and devoted the rest of his time to his true interest—the American soul, if such a thing existed. "This great America: What is its worth in the scale of human values?" Qutb wondered. "And what does it add to the moral account of humanity?" His answer: nothing.

Still, Qutb's contempt for America was not as simple as some people might now imagine. He did not recoil from political freedom and democracy, as, say, President Bush might expect from a jihadi theorist, nor did he complain about shades of imperial ambition in American foreign policy, as writers on the left might suppose. Regarding the excesses of American culture—vulgarity, materialism and promiscuity—Qutb expressed shock, but it rang a bit hollow. "The American girl is well acquainted with her body's seductive capacity," he wrote. "She knows seductiveness lies in the round breasts, the full buttocks, and in the shapely thighs, sleek legs and she shows all this and does not hide it." These curvy jezebels pursued boys with "wide, strapping chest[s]" and "ox muscles," Qutb added with disgust. Yet no matter how lascivious his adjectives, the

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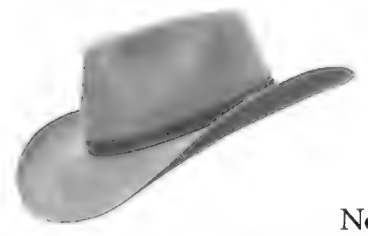
fastidious, unmarried Egyptian could not convincingly portray the church dances and *Look* magazines he encountered in sleepy Greeley as constituting a genuine sexual "jungle."

The core problem with the United States, for Qutb, was not something Americans did, but simply what America *was*—"the New World . . . is spellbinding." It was more than a land of pleasures without limit. In America, unlike in Egypt, dreams could come true. Qutb understood the danger this posed: America's dazzle had the power to blind people to the real zenith of civilization, which for Qutb began with Muhammad in the seventh century and reached its apex in the Middle Ages, carried triumphantly by Muslim armies.

Qutb rejected the idea that "new" was also "improved." The Enlightenment, the Industrial Age—modernity itself—were not progress. "The true value of every civilization . . . lies not in the tools man has invented or in how much power he wields," Qutb wrote. "The value of civilizations lay in what universal truths and worldviews they have attained." The modern obsession with science and invention was a moral regression to the primitive condition of the first toolmakers. Qutb's America was bursting with raw energy and appetite, but utterly without higher virtues. In his eyes, its "interminable, incalculable expanses of virgin land" were settled by "groups of adventurers and groups of criminals" who lacked the time and reflection required for a civilized life. Qutb's Americans "faced the uncharted forests, the tortuous mountain mazes, the fields of ice, the thundering hurricanes, and the beasts, serpents and vermin of the forest" in a struggle that left them numb to "faith in religion, faith in art and faith in spiritual values altogether."

This portrait likely would have surprised the people of mid-century Greeley, had they somehow become aware of the unspoken opinions of their somewhat frosty neighbor. Theirs was a friendly town best known for the unpretentious college and for the cattle



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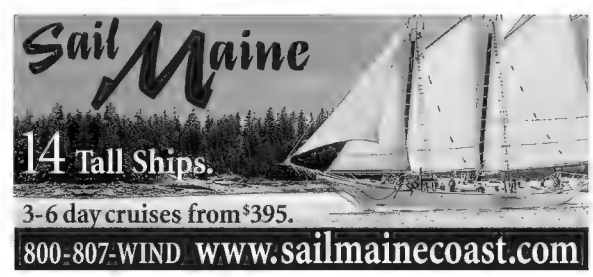

feedlots sprawling pungently on its outskirts. The founding of Greeley in the 1870s involved no ice fields, hurricanes or serpents. Instead, it began with a simple newspaper column written by Nathan Meeker, agricultural editor of the *New York Tribune*. On December 14, 1869, Meeker appealed to literate readers of high moral character to join him in building a utopian community by the South Platte River near the foot of the Rocky Mountains. More than 3,000 readers applied; from this list Meeker selected the 700 best qualified to realize his vision of a sober, godly, cooperative community. The town was dubbed Greeley in honor of Meeker's boss at the *Tribune*, the quixotic publisher Horace Greeley, who died within weeks of his failed run for president in 1872, just as the project was gathering steam.

Poet and journalist Sara Lippincott was an early visitor to the frontier outpost, and later wrote about it under her pen name, Grace Greenwood. "You'll die of dullness in less than five hours," another traveler had warned her about Greeley. "There is nothing there but irrigation. Your host will invite you out to see him irrigate his potato-patch . . . there is not a billiard-saloon in the whole camp, nor a drink of whiskey to be had for love or money."

"Humanity makes the gravest of errors . . . if it makes America its example," he wrote.

Greeley (in 1940) once inspired an American visitor to write: "You'll die of dullness."

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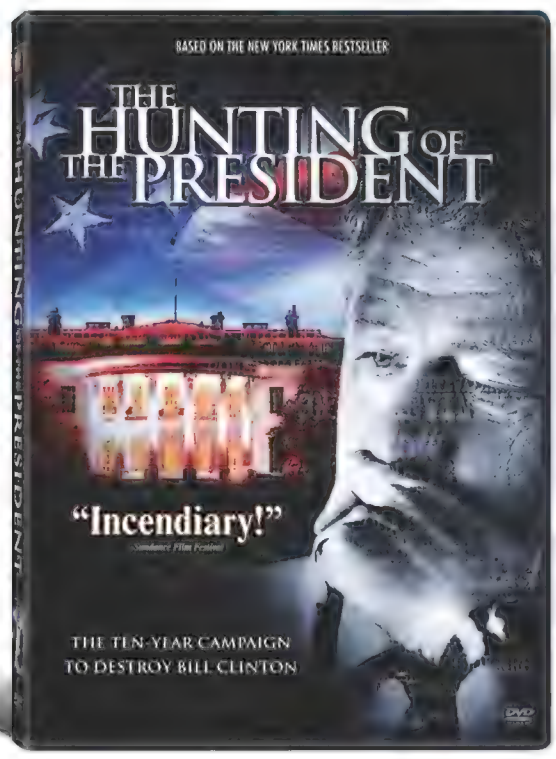
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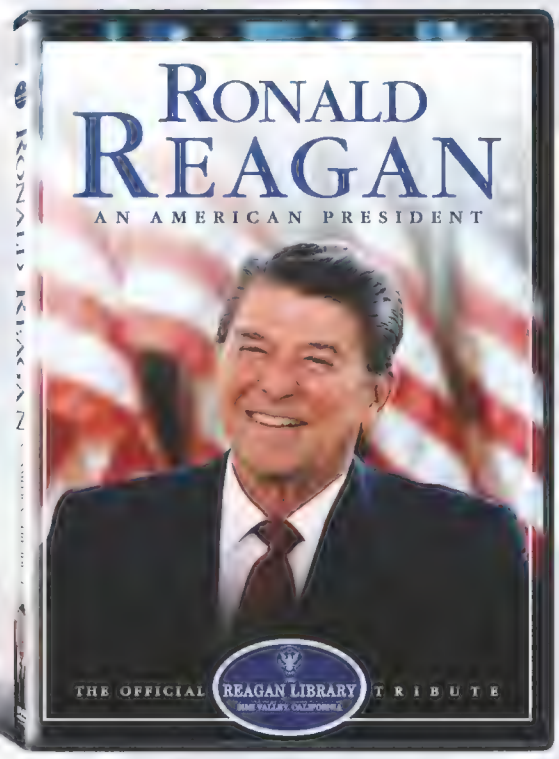

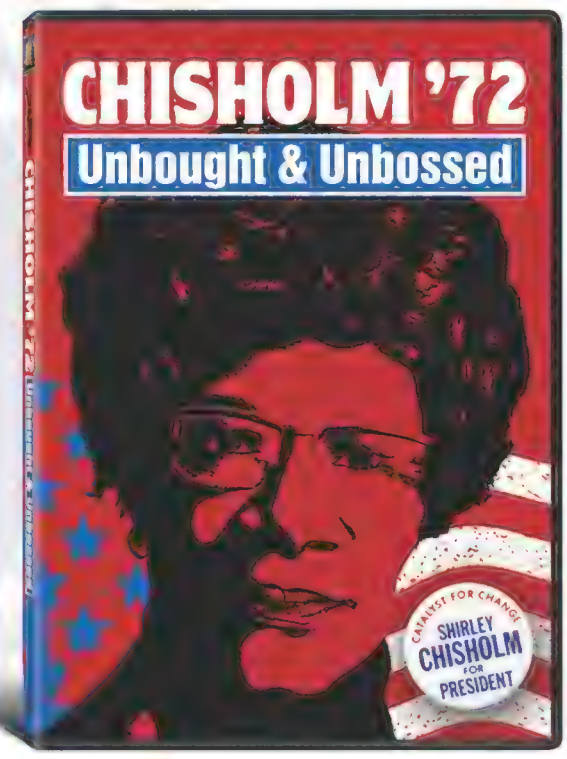

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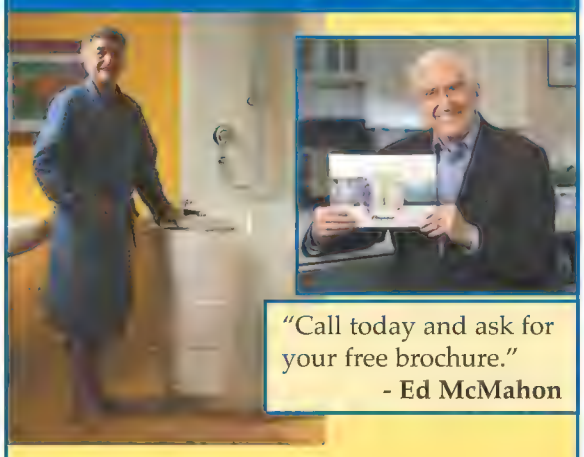

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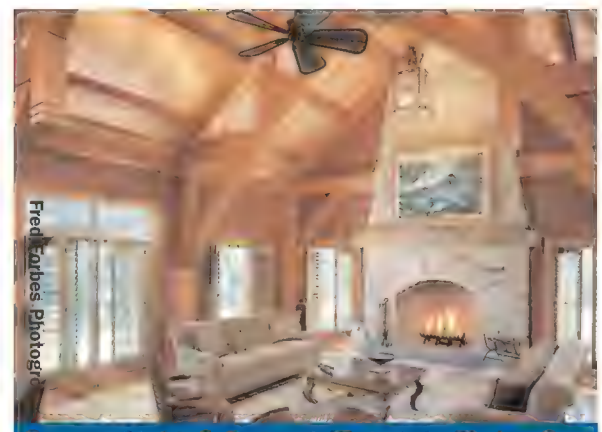
Qutb decried women, with their "sleek legs," courting men with "ox muscles."

None of that made any difference to Qutb, who saw only what he already believed, and wrote not facts, but his own truth, in his 1951 essay, "The America I Have Seen."

Sayyid Qutb cut short his stay in America and returned to Egypt in 1951 after the assassination of Hassan al-Banna, founder of the nationalist, religious and militant movement known as the Muslim Brotherhood. Over the next decade and a half, often writing from prison, Qutb refined a violent political theology from the raw anti-modernism of his American interlude.



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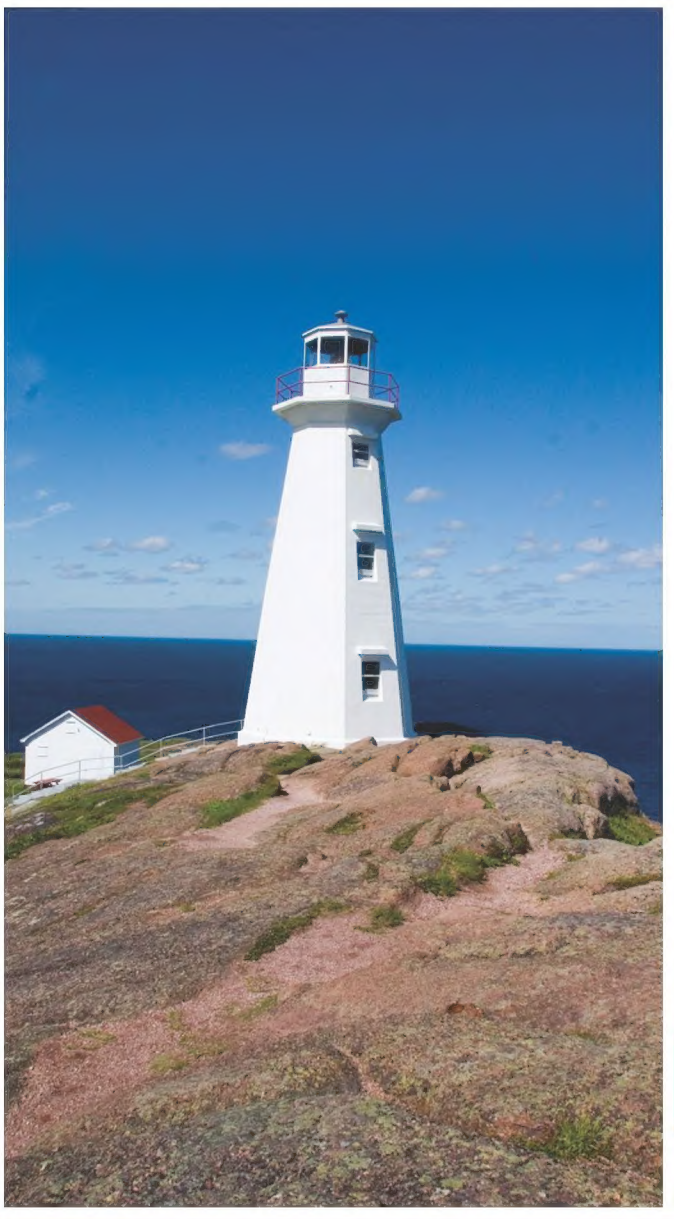
Virtually the entire modern world, Qutb theorized, is *jahiliyya*, that barbarous state that existed before Muhammad. Only the strict, unchanging law of the prophet can redeem this uncivilized condition. Nearly a millennium of history became, to the radicalized Qutb, an offense wrought by the violence of *jahili* "Crusaders" and the supposed perfidy of the Jews. And Muslim leaders allied with the West were no better than the Crusaders themselves. Therefore, Qutb called all true Muslims to jihad, or Holy War, against *jahiliyya*—which is to say, against modernity, which America so powerfully represents.

This philosophy led to Qutb's execution in 1966. Proud to the end, he refused to accept the secular Egyptian leader Gamal Abdel Nasser's offer of mercy in exchange for Qutb's repudiation of his jihad. Nasser may have silenced a critic, but the martyrdom of Sayyid Qutb accelerated his movement. The same year the philosopher was hanged, according to journalist Lawrence Wright, the teenage al-Zawahiri formed his first violent cell, dedicated to the overthrow of the Egyptian government and the creation of an Islamist state. Meanwhile, Qutb's brother Muhammad went into exile in Saudi Arabia, where he taught at King Abdul Aziz University. One of his students, an heir to the country's largest construction fortune, was Osama bin Laden.

Others have taken Qutb's ideas in less apocalyptic directions, so that M.A. Muqtedar Khan of the Brookings Institution can rank him alongside the Ayatollah Khomeini of Iran as "one of the major architects and 'strategists' of contemporary Islamic revival." But the last paragraphs of Qutb's American memoir suggest just how far outside normal discourse his mind was wont to stray. After noting the stupidity of his Greeley neighbors, who failed to understand his dry and cutting jokes, Qutb writes: "In summary, anything that requires a touch of elegance is not for the American, even haircuts! For there was not one instance in which I had a haircut there when I did not return home to even with my own hands what the barber had wrought." This culminating example of inescapable barbarism led directly to his conclusion. "Humanity makes the gravest of errors and risks losing its account of morals, if it makes America its example."

Turning a haircut into a matter of grave moral significance is the work of a fanatic. That's the light ultimately cast by Qutb's American experience on the question of why his disciples might hate us. Hating America for its haircuts cannot be distinguished from hating for no sane reason at all.

DAVID VON DREHLE is on leave from the Washington Post *to write a book.*



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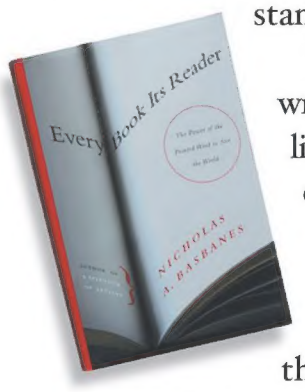
WHETHER in a garret or a sitting room, readers across the centuries have found their life's work—and altered the course of history—through books. That's the premise underlying Nicholas Basbanes' admirably wide excursion into literature, history and biography.

What, the author asks, does the examination of works that influenced figures as various as John Adams and Herman Melville, Abraham Lincoln and James Joyce, Thomas Edison and Winston Churchill contribute to an understanding of character?



"Books," Basbanes writes, "not only define lives, civilizations, and collective identities, they also have the power to shape events and nudge the course of history, and they do it in countless ways."

Searching out, for example, the sources of John Adams' devotion to the written word, Basbanes consults the second president's bestselling biographer, David McCullough. Since 1890, Adams' 3,200-volume holdings have been housed in the Boston Public Library, where McCullough spent countless hours with the collection. As it turns out, Adams read everything from Thucydides' *Peloponnesian War* to 18th-century Scottish economist Adam Smith's prediction, in *Wealth of Nations*, that England's attempt to regulate trade with the American Colonies was doomed to failure. Adams' reading, McCullough told Basbanes, was "not only broader, it was deeper, than Jefferson's." It is not really possible, McCullough added, "to understand any particular generation, or certainly that

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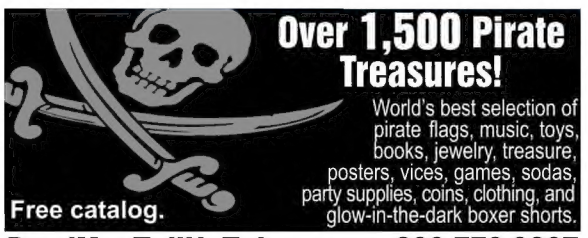
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generation of the Founding Fathers, without reading what they read."

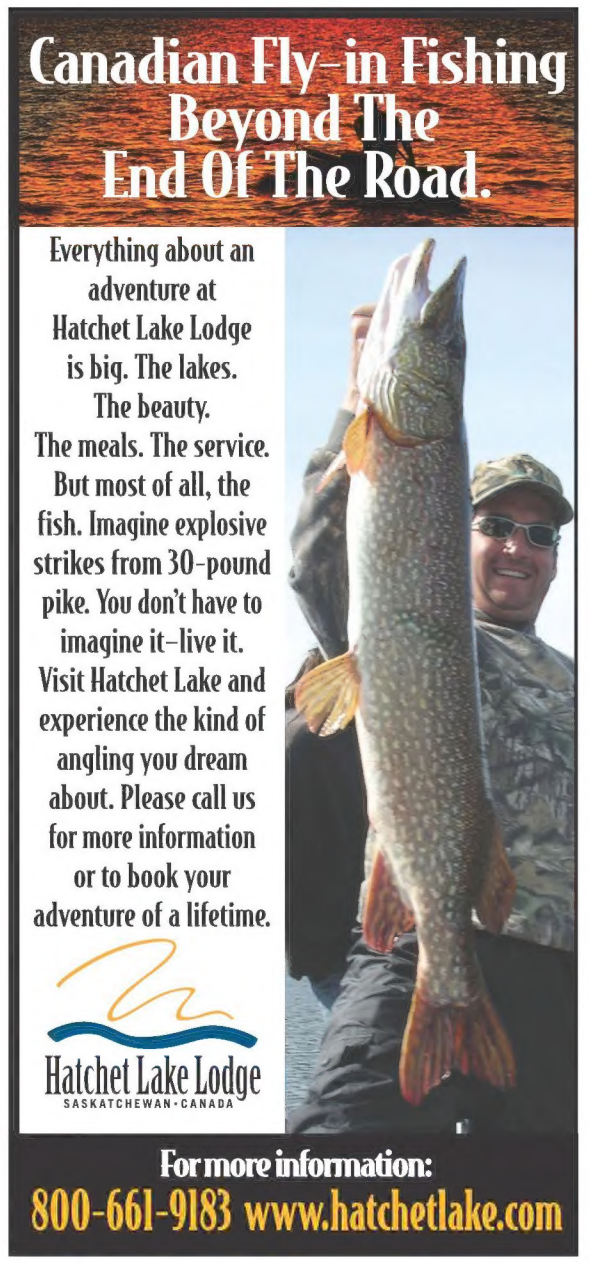
While Adams had the benefit of a formal education, a surprising number of Basbanes' subjects did not. Abraham Lincoln, who as a young man famously hungered for books, regretfully described his own disadvantages, referring to himself in the third person: "The aggregate of all his schooling did not amount to one year." But as Basbanes notes, Lincoln still managed to immerse himself in Shakespeare and the Bible, absorbing the cadences that would enrich his own matchless prose.

Inventor Thomas Edison attended school for only three months, at the age of 4, only to be pronounced "addled" by a teacher and sent home. Edison's mother, Nancy, took on his education, giving her son, at age 9, a primer describing experiments—"the first book in science I read when a boy," he would later declare. It could well be, the author speculates, that an early exposure to books tailored to Edison's interests allowed his genius to flower.

As for Winston Churchill, he signed on as an officer in the 4th Hussars instead of attending university. Posted to India at 22 in 1896, he found himself with time on his hands and decided to remedy his educational deficiencies by embarking on a regimen that more than equaled the reading he would have completed at Cambridge or Oxford. He later described his India interlude as "the university of my life." It was Edward Gibbon's *Decline and Fall of the Roman Empire* that captured his imagination: "All through the long glistening middle hours of the Indian day . . . I devoured Gibbon," he would recall, adding, "I . . . enjoyed it all."

Ultimately, the author argues, reading habits transcend the confines of choice, reflecting "deepest interests and predilections, even . . . dreams, needs . . . anxieties." Along with McCullough, Basbanes believes that one is what one reads.

Reviewer KATHLEEN BURKE is a senior editor at SMITHSONIAN magazine.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BILINGUAL BY BREAKFAST

ONLY ONE THING STOOD BETWEEN THE AUTHOR
AND THE *HOJALDRAS* OF HER DESIRE **BY LEIGH ANN HENION**

THE CONCRETE-AND-TILE house in which I'm living in Boquete, Panama, is often filled with echoes of the indecipherable chatter from the restaurant next door. It is patronized by men in evenly pleated Panamanian shirts and women in flower print polyester dresses. I long to mingle with them, speaking seamless Spanish. But my days here are divided into two categories: good Spanish days and bad Spanish days. And good Spanish days don't come around often.

Each morning, my bilingual, never-a-bad-Spanish-day housemate makes the ten-step trek to the restaurant to pick up brown paper bags filled with *hojaldras*, flat pieces of fried dough similar to Cherokee fry bread and carnival funnel cakes. We devour the *hojaldras* before they cool, chasing them with large mugs of *café con leche*. They taste like savory doughnuts or deep-fried pancakes. They are perfection.

Despite my love of *hojaldras*, I have a hard time remembering, much less pronouncing, the word. But on the morning I awake to an empty house, going next door for *hojaldras* myself seems the best way to start it.

"*Buenos días*," says a waitress as I enter the restaurant's turquoise-painted interior.

"*Buenos*," I counter with the abbreviated greeting I've heard on the street.

"*Quiero* . . . " I trail off, and find myself scanning the wall behind her for textual clues. Uh-oh, bad Spanish day, I think to myself.

I try again. "*Quiero un café con leche y* . . . "

She says something rapidly in Spanish that I cannot understand, and I strain to remember the word for what I'm craving. All I can recall is the guttural "ha" sound of the Spanish pronunciation of the letter "j."

Then, it comes to me: *Alejandro*. "*Quiero uno Alejandro, por favor*," I announce.

The woman stares at me for a moment, puzzled. I can hear grease sizzling behind her, the promise of a profoundly unhealthy deep-fried treat. As I watch her face for a hint of recognition, we trade furrowed brows. She breaks into laughter, and I am befuddled. All I know is that the joke is on me.

"*¿No entiendes?* You don't understand?" I ask helplessly, but I'm the one who doesn't understand. I silently begin to wonder, *alejandro*, *alejandros*, isn't that what they're called?

I suddenly realize my mistake. I still can't remember the Spanish word for fry bread, but I know I just put in an order for one man named Alexander, or Alejandro.

"*Lo siento*!" I cry. "I'm so sorry."

The waitress, suddenly sympathetic, pulls a green-lined tablet out of her half-skirt apron and pushes it across the Formica counter. "*Hojaldra*," she says slowly, pointing to where she has scrawled the word in pencil. "*¿En Ingles?*" She asks.

"It's not exactly the same," I explain in broken Spanish, but I print f-r-y b-r-e-a-d on her tablet under *hojaldra*, and she smiles.

She repeats slowly, after me, "fry bread." Saying it again with more confidence, she claps her hands together in delight, and turns toward the kitchen, shouting my order to a cluster of women who are watching over large cast-iron crocks. "¡*Una hojaldra*!" Then, proudly: "Fry bread!"

With a bag of *hojaldras* firmly in hand, I rise to leave, and a man sitting on the far end of the restaurant calls out teasingly in Spanish. His words roughly translate as, "I bet you don't eat many of these. But he eats a lot." He points at his table mate, a red-faced man with a beach-ball belly.

We laugh together, and the two men invite me to sit with them. I can tell the invitation is sincere, so I settle into a chair and open my bag.

As I tear off a tiny piece of fried dough, the potbellied man asks my name. "Lilianna," I tell him.

"*Mucho gusto*," he says. Then, laying a hand on his chest, he introduces himself: "Alejandro." I smile in disbelief. I've just broken *hojaldras* with an Alejandro, and I can tell that today is going to be a good Spanish day after all.

LEIGH ANN HENION, a freelance writer, lives in North Carolina.

JOSEPH DANIEL FIEDLER